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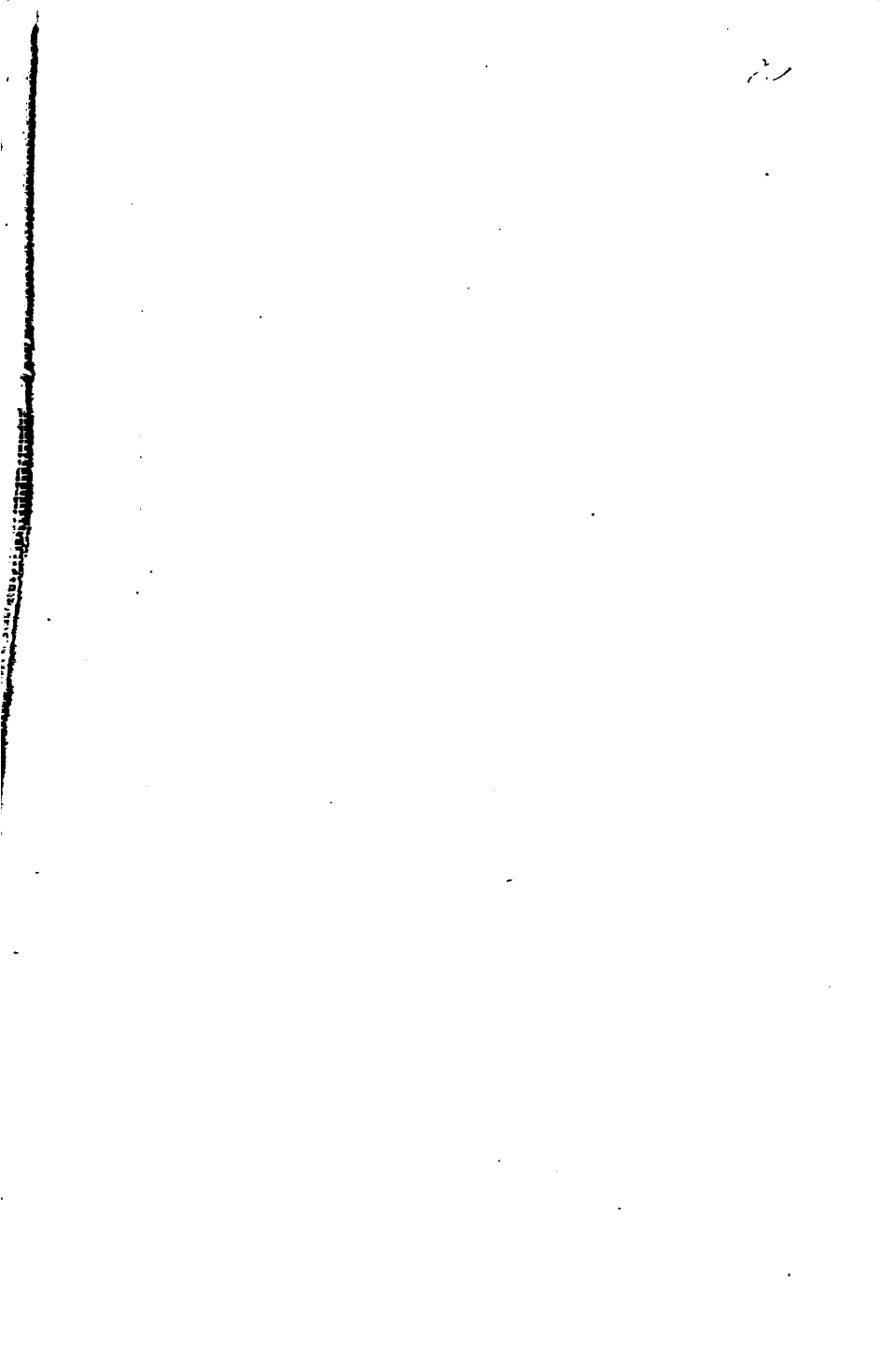
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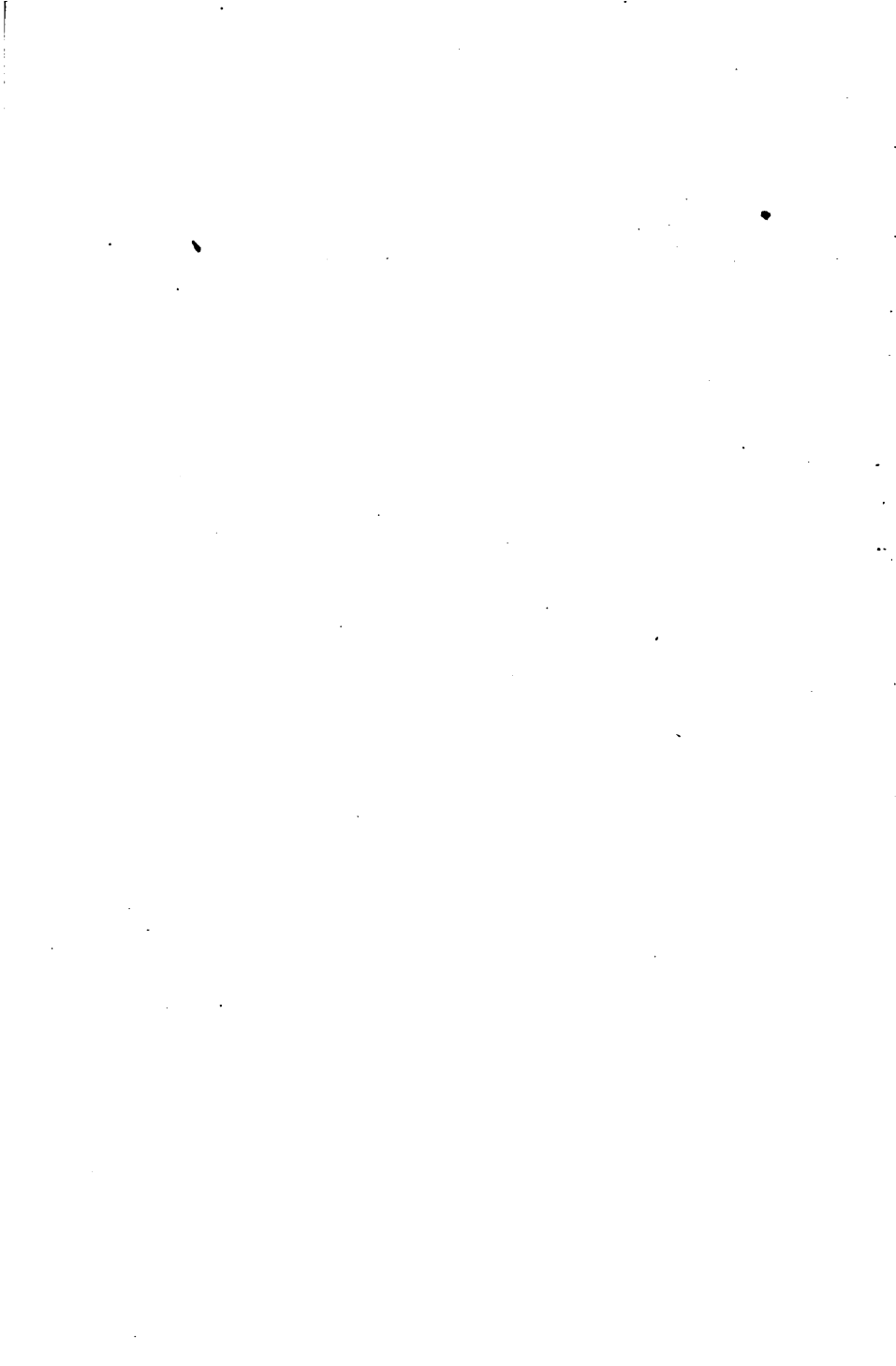
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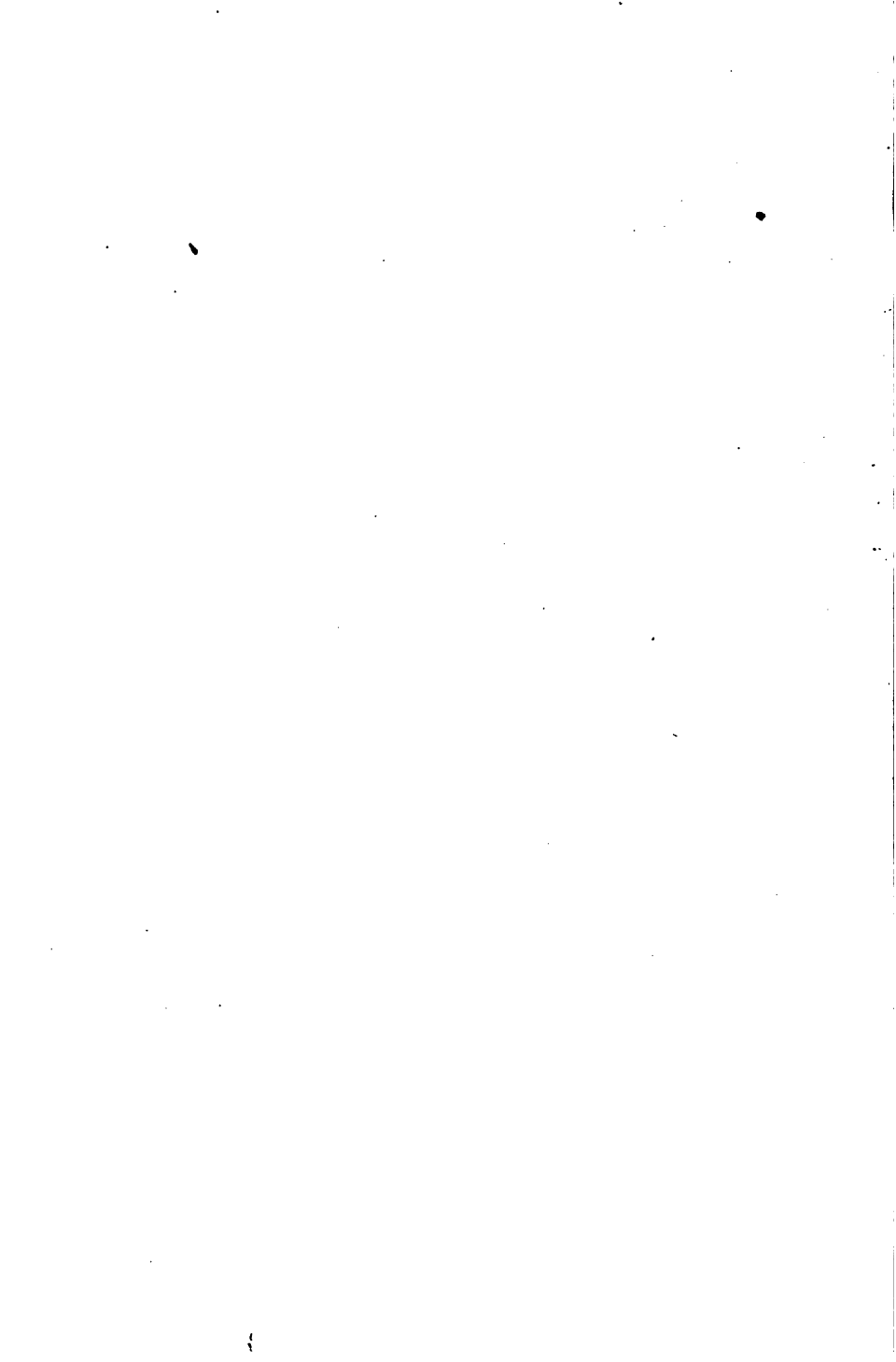
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BIOGRAPHIC CLINICS

VOLUME IV

ESSAYS CONCERNING THE INFLUENCE OF VISUAL
FUNCTION, PATHOLOGIC AND PHYSIOLOGIC,
UPON THE HEALTH OF PATIENTS

BY

GEORGE M. GOULD, M. D.

Editor of *AMERICAN MEDICINE*, Author of "An Illustrated Dictionary of
Medicine," "The Practitioner's Medical Dictionary," etc., "Borderland
Studies," "The Meaning and Method of Life," etc.

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PREFACE

I THANK the editors and proprietors of the following periodicals for permission to republish the articles herewith reproduced:—*The Annals of Ophthalmology*, *The Popular Science Monthly*, *The Montreal Medical Journal*, *The Boston Medical and Surgical Journal*, *The Medical Record*, *Putnam's Monthly*, *The St. Louis Medical Review*.



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PROGRESS.

CHAPTER I.

PROGRESS.

IN the year since the issuing of Volume III of these *Biographic Clinics* there has been more progress made in the cause they aim to further than in the thirty and more since Dr. Savage announced the discovery of the cause of sickheadache, and Drs. Thomson and Mitchell demonstrated the dependence of many nervous diseases upon eyestrain. This progress is shown in several things:—the multiplication of favoring clinical reports; the vindictiveness of the few opponents of the theory; the turning of many of the silent and ignoring into open opponents; and the outspoken conversion of a great number of general practitioners and specialists. Each class is to be encouraged because each contributes to the all-desirable end—those who have cured patients by the relief of eyestrain should report their cases; the conservative, the dogmatic and bigoted should denounce, and gibe, and slander; the ignorers and pooh-poohers should become serious in their calling and therapeutics; and the doubters should prove their unfaith and their faith. These are the only methods of getting out into the open with this or any other reform, and of bringing to millions

of suffering patients this method and this possibility of relief.

Within the year I have received a host of letters from physicians. From a few of these I shall quote sentences or paragraphs, because the printed literature does not give a good or accurate indication of the trend of forming and soon-to-be-expressed opinion. A peculiarity of many letters is that there is a disinclination to be quoted, or a positive request not to quote the names of the writers, In all such cases I respect, of course, the anonymity. It is pitiful, but bears witness to the lengths to which intimidation, conscious or unintended, has gone.

I can agree with you, as my experience confirms what you say upon the subject. In my ten years of eyework I have made some remarkable cures by glasses. I could not speak of them as I thought the profession would not believe me. [*An oculist of Chicago.*]

You have my most hearty sympathy in the work you are championing, and I wish you all success in your endeavors.

I have for several years been in sympathy with your statements about the neglect of the recognition of troubles brought about by eyestrain.

Oculists to whom I send such patients do not believe me when I insist that the eyes are causing the trouble. They regard me as cranky upon the subject, and so I am obliged to send the patients back to them, time and again, until they get the correct lenses, or the accurate adjustment. [*A general practitioner.*]

I am an enthusiastic supporter of your views. I am sorry to say that the doctors here are all more or less familiar with

your "hobby" but treat it with the same sneering contempt you have mentioned. I have had several arguments already but of course I am not in a position yet to substantiate them with cases. However I have already taken a girl who was so discouraged she thought she would have to give up school—a girl who had been under the care of the only oculist here for two years—and relieved her of nearly all of her symptoms with:—O. D.+0.25 S.+0.25 C. ax. 90°; O. S.+0.50 C. ax. 90°. I am picking up experience in refracting and judgment in knowing what glasses to give but such experience is costly if mistakes are made.

Professional jealousy is the main reason that the profession does not acknowledge the role of eye-troubles in causing a vast host of reflex symptoms, but such acknowledgment cannot long be delayed. Who can estimate the suffering that will be banished from the earth when the profession sees the truth of your demonstration!

It seems a paradox but it is true that although there is no profession that has had to take in so many new views, there is also no other so hostile to new views.

I am very glad to read your articles on eyestrain. Keep hammering at the general practitioner; perhaps some time he will understand the reflexes caused by this defect. I, devoting my whole time to internal medicine, have difficulty in compelling most oculists to bear me out in believing that eyestrain can cause so many disturbances. Dr. ———, however, is with us in this fight. [*The Professor of Materia Medica and Therapeutics in a great University.*]

Dr. Leo-Wolf, of Niagara Falls, N. Y., U. S. A., in the *Wiener klinischen Wochenschrift*, No. 36, 1906, reports cures in cases of mucous colitis, migraine, hysteria, insomnia, neurasthenia, disorders of digestion, melancholy, bilious attacks, constipation, colds and nasal disorders, nervous dyspepsia, swoonings, dizzi-

ness, chlorosis, all by means of correction of errors of refraction. The adherents of this view, says Dr. Leo-Wolf, are daily increasing despite the opposition of many wellknown ophthalmologists.

I have two illustrative cases—one of genuine migraine which the great neurologist,——, said was such and due to faulty metabolism (*sic*) and autotoxemia (again *sic*); the other, a case of idiocy from headaches with epileptoid symptoms, now a useful citizen driving his father's bakery wagon, who before could not construct a sentence of five words, and would not know his way home if ten blocks away.

I know that you are right in your attitude, because my personal and professional experiences corroborate it. I can recall a score of patients in the last two or three years whom I refused to drug until their eyestrain and what it produced was relieved—and they needed no drugs, or very little, along with hygienic, dietetic, and other management. I could cite you one man who had been to eight oculists in —— and was nearly insane. I insisted on his going to the ninth—then he was relieved. Had he not been, then he was booked for you. The others had been of his choosing, and I was astounded to know the names of several who pooh-poohed his condition. I wish you much success in your crusade.

I feel indebted to you for stimulating my enthusiasm in the study of refraction and the correction of refraction errors.

Just relieved a patient who had subnormal accommodation, and hyperphoria overlooked by four "good" men. Medical specialists are careless, and do bad work and then complain about opticians. Why don't they improve themselves instead of finding fault of this?

I have long been a believer in your ideas of eyestrain and have been in the habit of sending my patients to some specialist friend to have the question of eyestrain removed in all headaches, and such symptoms as you describe.

It gives me great satisfaction to see that you have the courage of your convictions in setting forth the truth that has been held down so long. I am unable to find words to express my feelings toward you, how I appreciate the stand you have taken with relation to diseases of the general system which are in many instances produced directly or indirectly by eyestrain.

Since I saw you I have had some very interesting cases; one a lady cured of "rose cold" by correcting a —O. D.—.75 ax. 165°; O. D. +.50 $\bigcirc$ —3.25 ax. 170° refractive error. Another case of a boy sent to the hospital with supposed spinal meningitis with 3° left hyperphoria and +.37+.75 ax. 90° in each eye. And another paroxysmal left supraorbital neuralgia with +.87 ax. 90° in E. E. and 5° left hyperphoria. These cases had been treated by general physicians in vain.

"Those who should have been the wise judges and acceptors of new truth, have as a rule been its rejectors and enemies." It would sometimes seem as though the greatest contributions to medical progress arouse opposition almost according to a law; the opposition is strong in proportion to the greatness of the contribution. There appears to be little opposition to commonplace things. For him who gives the profession something really great—the sandbag;* for him who makes a splint—honor and fame. A splint may be unique and good, but it is not like the discovery of great principles and truths constituting foundation stones for the temple of science.

Two or three weeks ago I had an interesting head-tilting case, that of a girl, age 16, who has been wearing, from one of the best oculists in Los Angeles, R. + sph. 0.50 $\bigcirc$ + cyl. 0.25 axis 90°. In spite of this correction her eyes have continually felt

*For Boylston, introducer of inoculation in Boston, the bomb and the halter, literally. (Mumford. *A Narrative of Medicine in America*.) The mob was instigated by his Boston confrères. To-day you get the same figuratively, if you are not ignored.

as though they were full of sand. When seated in my chair I noticed that she had a little tilt of the head, and with her head tilted the axis of her cylinders would be at 90, but with her head erect would be at 75. Examination under homatropin and cocain confirmed the off axis and I have accordingly prescribed for her R. + sph. 0.50 $\ominus$ + 0.37 axis 75.

Now in my small work here, I have had several opportunities to demonstrate to my satisfaction that the correction of a refractive error met all the therapeutic indications in a certain class of cases.

From my experience it would seem that clinicians who disregard or dispute the importance of refractive errors in conditions other than those of conscious disturbance of vision, must have neglected their opportunities for observation, or else are unwilling to give the matter fair consideration.

It will interest you to know that Mrs. S—— lost her attacks of colic about a week after the prescription of glasses, and they have not yet returned, though she still has occasional headaches. This result is not to be attributed to medicines, as I purposely refrained from prescribing drugs that would interfere with our observations.

I cannot understand how you can be said to have exaggerated the influence of eyestrain, etc.

Since, owing to your writings, I have recognized that there are other morbid conditions besides simple headaches, due to eyestrain, the number of these cases in my practice has been daily increasing. In all cases where my patients have followed my advice and have consulted an oculist who knew his work and did his duty I have been proved right. The opposition to your views comes from a few older oculists in the hearts of the large cities.

Having been a great sufferer all my life from uncorrected eyestrain I wonder now how such unmistakable and overwhelm-

ing proofs of the correctness of your position are not only rejected but contemptuously spurned.

I am a most thorough believer as to the very great influence for harm to the nervous system, of uncorrected refractive errors. I have read your articles with the greatest interest and cannot see why so many seem blind to the truth contained in them. [*An oculist.*]

"Neurasthenia" has slipped nicely into the place of "Hysteria," and satisfies the patient better. It has such a grand sound that it is really quite a pleasure to most women to have the diagnosis so established. Both terms are, in the great majority of cases, simply a cloak for ignorance and a confession of incompetence on the part of the physician. In my experience the nervous system is on the whole the most well behaved of any portion of the animal economy—the least liable to get out of kelter. This should be so because it is the least protected. Like Jeff. Davis all it asks is to be let alone. Of course, it does like good food and enough of it. It does, however, resent outside interference and does not hesitate to make a fuss when that occurs. The doctor's business is to find out what it is complaining about and to seek diligently until he finds it. I doubt if there is such a thing as a purely functional nervous disease. I have long said that the coming triumphs of modern medicine were in the domain of ophthalmology, and more especially in the line of correction of errors of refraction. This from the point of view of diminution of suffering, solely.

What we want now is to turn our efforts in the direction of the *prevention* of the troubles which we now remedy. What is the outlook for that?

I have often noticed the close relation between eyestrain and nervous disease.

You have properly protested against the bad work and bad results of oculists.

You are doing pioneer work in one of the most important fields of your specialty. [*A surgeon known all over the world.*]

I am impressed with the number and force of your facts and arguments and believe your conclusions must embody a large amount of truth though your voice may be as of one crying in the wilderness. [*A pathologist of international fame.*]

While not an oculist myself "I have suffered many things at the hands of many oculists." At last I see progress toward relief, something I had almost despaired of after such long misuse. I am very much interested in your article for another reason. I have been for some years a Medical Inspector for the Health Department of Manhattan and am at present in charge of a Girls' Grammar School, where I was assigned by special request of Miss Alida S. Williams, and by my own desire. She is greatly interested in the eyestrain question, as well as other points connected with school children's hygiene and we take great pleasure in making the work something more than a political job. I can corroborate in every particular your statements, especially the last paragraph: "From thirty to fifty percent of school children have sufficient eyestrain to lower their health, put them behind in their classes, or otherwise abnormalize them mentally or physically." The physical defects among these children are appalling. It is a great pity that some philanthropist does not give a sum of money, the income to be devoted to the supply of glasses for those children who cannot afford to buy them and who are compelled, if they can raise the money, to submit to the blind prescription writing which requires them to take the prescription to a certain optician designated by the Clinic, who, as Miss Williams has discovered, charges more than the glasses could be gotten for at a general optician's with a plain prescription. It is also a pity that a fund is not available for the support and encouragement of physicians who are willing to do this work and who cannot devote sufficient time to it

because they cannot live on \$1,200, which is the sum per year paid to the inspectors. (*Dr. Floyd B. Ennist of New York.*)

You are the first to recognize what I have said is the crux of the whole matter—the genesis of the myopic eye. I approve most sincerely of all you have said. I have been a close reader of your many articles on eyestrain and its results and I can unqualifiedly endorse all you say about it, and am so much impressed with the truth of your position that I never read an adverse criticism any more for the reason that I know from my experience extending over a period of fifteen years that eyestrain has caused more migraine and other protean forms of headaches and nervousness than any other and in fact all other causes. I feel like I would not dare to report some of the cases and marvelous cures I have had, for fear they would not be believed. I commend you for keeping up the crusade.

I regard the influence of your work on mine as complimentary, rather than revolutionary. It was not in my view subversive in any way, but it certainly filled in a very large gap which would otherwise have damaged my thesis materially. [*Francis Hare, Author of "The Food Factor in Disease," 2 Vols.*]

I have *all* of my nervous patients consult a good ophthalmologist the very first thing before going farther into the diagnosis, and I have been surprised how many of them have some eye troubles, which when relieved clear up all their nervous and gastric symptoms and straighten out their "faulty metabolism," which is now being used in the place of the word "neurasthenia," to cover up our ignorance of the cause of much illness. No wonder people are going after "strange Gods" and taking up with Christian Science, Osteopathy, etc. There are too many "—fool" specialists and not enough broad-gauged men of common sense in our profession who are big enough and honest enough to admit that the trouble with many of their patients is "out of their line." Isn't it about time to write up the "graft"

and "frenzied finance" in the medical profession? Sometimes I get disgusted with the ignorance and dishonesty of many alleged "great men" in our profession and threaten to abandon medicine and go to farming. [*A neurologist known to the whole American profession.*]

It is quite remarkable how many cases of the most remote ailments can be traced to eyestrain and my records of such cases are growing daily since my attention to the subject has been attracted by reading your works. [*A general physician.*]

My best successes in medicine have been accomplished by the aid of your studies. Cases I meet among weavers and loom-fixers as well as others are fully as tragic as any you describe occurring among people of literary life; and since my field numbers thousands where yours is represented by tens, for a few great men cannot overbalance the mass of hardworking people of the mill districts, you will admit that my eyes fall upon a worse condition than you have pictured. These people are the seed for anarchists and other dangerous sorts of malcontents, and the seed for drug or other manias. And the daily tragedies which I can tell you of, or show you if you will come up to my office, you will scarcely feel able to credit until seeing. Dr. ——— has nobly aided these people, buying their glasses as well as treating their ocular defects. You do not know what a fine fellow he is if you do not know just what an immense amount of practically free work he is always doing for my people. [*A general physician.*]

I might say that I am one who heartily supports not only the reply to Dr. Davis above referred to but most all of the statements I have seen from your pen.

It would hardly seem that it is necessary to pile line on line and precept on precept in order to make a reluctant world realize that accurate refraction is the first and greatest law in ophthalmology; nor yet to cite case after case as though one's word

might be doubted, to demonstrate what may be seen in our offices daily, viz., that most profound disturbances, not only affecting the nutrition of the eye, but as well the central nervous system, have their origin in eyestrain and are cured by its relief. And yet when one reads a recent editorial in the *New York Medical Journal* in which the writer with an air of complaisant satisfaction denies such a possibility, one feels that the editor is thanking God for his ignorance!—and you feel that he has much to be thankful for. Can such a man as Fisher, or as Dana, honestly believe that this position is justified? Or is it that, having once taken a stand publicly, his pride will not allow him to recede?

In 1903, at the meeting of the German Ophthalmologic Society, Herr Adelsheim, of Moskau, said:—"Very frequently headache, migraine, neuralgia, giddiness, cramp, even epilepsy, are only consequences of errors of refraction, of accommodation-strain and heterophoria, and their correction often stops all the morbid symptoms. The practitioner must be able to recognize these ocular disturbances in order to refer the patient to the oculist."

Mrs. Lucy H., aet. 38 (looks ten years older), for ten years has had the most intense hemicrania, with paresthesia over entire body, loss of consciousness, vomiting, constipation, attacks, one to three a week. Refracted May 18, 1905, V. in O. D. 20-70, in O. S. 20-200; with mydriatic, 15-200 in E. E.; accepted in O. D. $+3.50 \bigcirc +1.25$ ax. $45^\circ = 20-30$; in O. S. $+2.75 \bigcirc +2.75$ ax. $125^\circ = 20-30$. Postmydriatic acceptance O. D. $+2.00 \bigcirc +1.25$ ax. 45° ; O. S. $+1.25 \bigcirc +2.75$ ax. 125° . Returned November 6 stating she had *not* had a *single attack since wearing the glasses*.

As one of those who feels the importance of this subject of the influence of refractive errors on general health, let me take this opportunity to express my admiration for your uncom-

promising and unceasing efforts to place the treatment of refractive errors where it should be.

Perhaps many have written you of making use of the volumes one and two by placing them in the hands of interested and intelligent patients. I have given away and loaned many copies, especially of Volume I, and wanted you to know that the good tidings are being disseminated in this locality. [*A good oculist.*]

Your faith in the possibilities of our special work has not once but many times been a source of reinspiration to me in periods of carelessness and discouragement. I only wish you could impart in the same way a training in exactness and method which would enable one to realize more regularly the ideal he has before him.

Professional men can talk all they please about eyestrain. I know my whole career has been crippled by defective eyes and the various nervous symptoms have left an indelible mark on me. I am very sorry I did not meet Dr. — before.

Thank you very much for the volume containing the article on slant writing, etc. You are doing God's service in calling attention to these facts. We put the book at once into the hands of the physician who examines our students.

. . . . A revelation in several important respects. I realize that in a very strong way they reflect a new light upon neurological problems, which must cause a revision of some views. [*A neurologist.*]

There are none so much in need of the services of the advanced ophthalmologist as are those that won't see. Let the good work go on!

You will be interested to know that I have just heard from a patient who had been suffering from abdominal cramps supposed to indicate appendicitis, who has mixed astigmatism as determined by a local oculist to whom his physician referred him rather than have him remain in Philadelphia; that he has had no

pain whatever since he has become accustomed to his glasses and that certain gastric symptoms, such as belching, etc., have also disappeared.

Eyestrain is the most frequent cause of sickheadaches. As I see it, it is the prime in a group of causes; often being solely responsible. Eyestrain affects profoundly the whole body metabolism; so will an aching tooth, or diseased tonsil, or many other local malhappenings. But they all differ from eyestrain in that they come and go, while it is constant. And the reoccurrence of the sickheadache is determined by the intensity of the strain, its adding a little damage each day, plus the ease with which the physical economy is upset. Eyestrain is the least understood of any part of "ophthopedics," for is its basis not a deformity? That, however, is a country doctor's view, although I have had ten years of training in a city hospital. In not five percent of those I send to the city to be fitted with glasses is the work correctly done. They all return with glasses, but I have to continue to treat the systemic effects of eyestrain.

I am confident you are right in the position you have taken on the remote effects of eyestrain. In the near future the oculists and medical profession will accept most of your views. [*An oculist.*]

We all owe you a debt of gratitude for your persistence and temerity in telling the public what eyestrain may do in the causation of reflex nervous disturbances. While many of us have realized the importance of the subject I think the fear of ridicule has restrained a free explanation of our opinion. It is simple enough; eyestrain causes a demand upon the nervous system, which it is unable to meet, and as a result improper nutrition in some other parts of the body. The manifestations of nervous fatigue are infinite, and to ascribe some of these symptoms to eyestrain, without explaining the causation, renders one an easy victim to prejudicial criticism. [*A wellknown ophthalmologist.*]

There must already be a very large number of people who owe comfort, prosperity, and visual efficiency to your vigorous crusade against uncorrected eyestrain.

I am entirely in sympathy with your ideas and feel that your campaign of education is going to result in great good to humanity. I am especially glad to note that at least a few of our foreign brethren are beginning to appreciate the importance of correcting small errors of refraction.

As I peruse the work and hear the talk on the part of critics, I feel quite sure that the larger fame and glory that comes from such labor as you have done, will accrue to you in the years to come. Sentimentalism in literature and knowledge must be replaced by realism before the great value of the work you have done will be appreciated.

Dr. H. L. Brush, a general physician of Conneaut Lake, Pa., reports the case of a boy of eight, who had had chorea for 4 years. The movements had been general, of the arms principally, but the whole body often implicated. The spasmodic movements extended to the face, eyes, and lips. There was no systemic disease discoverable. Little or no improvement followed general treatment for 2 months. Vision was not good, and the child was sent to Dr. C. C. Hill, of Meadville, who ordered glasses. Improvement began at once, and soon the chorea entirely ceased. "Today he is perfectly well."

"—one of the most important parts of an ophthalmologist's life-work. It is truly pleasant to know what one's friends are doing for the good of humanity—and you have done much. I

am glad to have your friendship and congratulate you from the bottom of my heart."

I must say that in all I have read, and from experience, there has been nothing near so convincing as regards the importance of correcting eyestrain as your reasoning on the subject, and I regret very much that I did not get in touch with your writings sooner. Several months ago, there appeared a series of articles from your pen on Premature Presbyopia, and I began to investigate, laid aside my "rules" and my work now shows results. Besides I find it pays to have no rules but to correct each case as I find, and never to ignore low degrees of astigmatism.

We need such literature in every doctor's home. I have been doing eye-work for twelve years, and I think the general practitioner is living in Mosaic times in regard to eyestrain. Could I get a thousand or more reprints of this article to send every doctor in my vicinity a copy?

Circumstances arising which prevented my going to consult you as I planned, I consulted Dr. E. E. Jack, of Boston; a mydriatic disclosed a considerable amount of mixed astigmatism; am wearing glasses with great comfort and hopes of permanent relief. I have been a close follower of your writings and am in hearty accord with your teaching. While I realize that I have much to learn yet I am earnestly trying to do good refraction work and your writings have been a great help to me.

I assure you I appreciate very much the work you have been doing along these lines. I think from time to time you receive the cussing due to work of an advanced order, and I think no doubt you can stand that part, in consideration of the appreciation of many men who are interested particularly in these subjects. [*An oculist of national reputation.*]

Your works have been the means of saving many persons from similar life tragedies. If the future oculist reads them

before starting his life-work there will be less misery in the world.
[*A successful oculist.*]

As to the cause of lateral curvature, the influence of dextrocularity, etc., I could quote perhaps from a hundred letters and personal reports. Several school journals have taken up the reform of desks on the lines suggested, have reproduced my articles, etc. I have had probably a hundred cases in my private practice illustrating the theories set forth in Volume III of these biographic clinics. I include in the present volume an address delivered in New York upon the subject by the orthopedic surgeon, Prof. H. Augustus Wilson. One of the most honored if not the greatest of authorities in orthopedics writes:

"I am becoming much interested in the whole question of school seating, and I am convinced of the correctness of your theory. I have tested a number of persons as to right-eyedness, always with one result, and the only left-handed person was left-eyed."

Yesterday I found a typical case of twisted spine from imperfect eyes. Now that I understand I wonder any one is so blind as to overlook such instances. Dr. ——— examined the child's eyes, and found one was virtually useless. Let the good work go on! [*A great teacher.*]

I was called upon by the Y. M. C. A. to examine the school children between the ages of 12 and 18 years, who wished to try for the various football teams of the Public School League. Now these boys, who were candidates for their various school teams, represented as a rule the physically fittest of their schools and also were of a high standard of scholarship. Thirty-five

passed through my hands before I had to give up the work. It was with regret that I had to stop then as there were about 150 to be examined. These thirty-five were excellently developed and good size for their age and yet *eight* showed lateral curvature. The curvature in most cases, to be sure, was of a slight degree—averaging about 1 cm. or so from the median straight line. Six of the eight had a right cervical, with a slight left dorsal compensating curve and two left cervical and right dorsal. Eight out of thirty-five! Will I find the wherefore? I handed my results to my successor, but regret to say he was skeptical and did not follow up the work on the remaining 115.

Dr. H. L. Brush, of Conneaut Lake, Pa., sends me the following reports of two cases of nocturnal enuresis, cured by spectacles:

Case I. Beatrice, aet. 6, a well-developed and well-nourished child, of neurotic temperament, however, affected with bed-wetting since infancy. Urine normal, in fact could find no exciting cause. Gave atropia in solution and as long as she took the treatment was relieved but soon as medicine was stopped bed-wetting recurred. One day while she was in my office I noticed her looking at some magazines upon my office table and concluded some error in refraction existed. I sent her to a competent optician who found astigmatism present, corrected same with glasses and the enuresis was cured immediately, and for the past nine months she has been free from bed-wetting.

Case II. Girl, aet. 12, enuresis for past eight years. Headache about twice a week, compelling her to keep in bed during the attack. She, having run the gauntlet of all the doctors in the neighborhood, I was doubtful about accepting the case. Upon close examination found her digestion poor, with a tendency toward the so-called uric acid diathesis; urine heavily loaded

with uric acid, bowels constipated, appetite almost nil, in fact malnutrition seemed the prominent feature. The bed-wetting, however, being of so long standing and antedating the other conditions I believed the exciting cause of that was the key-note to the whole situation. Accordingly I sent her to an optician who found a very pronounced degree of astigmatism present and corrected the same. Improvement began at once and today is perfectly healthy. Enuresis disappeared five days after glasses were secured. Has gained in past four months 20 pounds and is perfectly well.

As regards private letters, anonymous or signed, filled with personal and ridiculous malevolence, they do not count. It is a lost cause that employs such methods of—dying.

I may not now even list the reviews, the articles, references to books, and monographs, which, during the year have shown the changed attitude of the profession, even of some of the "leaders" upon this question. The literature is there for any interested observer. Exceptionally indicative and qualifying are the references to the subject in the volume recently issued, edited by Drs. Posey and Spiller. Such books are usually of little value; the endeavor to bring unity into the compositeness, the averaging of diverse opinions, as well as the most difficult task of steering clear of the extremes, generally makes the labor of the editors and the confusion of the readers somewhat ludicrous. As individual opinion is that which alone has value, the truth is likely to be lost in what is usually a desper-

ate endeavor to say nothing. This is so of much of the book mentioned. The authors in separate articles are allowed to give their diverse opinions concerning the same diseases. The epitome of their subjects by Doctors Risley and Hansell are worthy of all praise, and are the seal of professional approval upon essentially all that has been claimed by "the eyestrain theorists" and "exaggerators." If there has been "ridiculous hobby-riding" and "extremism," it now remains for those who admit some truth in the extremism to bring the blessing of the admitted truth to millions of sufferers. Risley and Hansell have done an immense service in getting these articles and views published and in such company. One has scarcely less thanks for the conjoint publication of another "neurological" article in the same volume. In this all the shame and the shamelessness of the old neurology are delightfully exposed, and with especial claims to dishonor. In such unscientific, illiterate, and inhuman stuff one sees that there are men with the degree of M. D. who take profound delight in killing any hope of health in their patients, and in forbidding them to try methods of cure recommended by other physicians.

Dr. Wm. H. Phillips, of Cleveland, Ohio (*Cleveland Medical and Surgical Reporter*, July, 1906) reports as follows:

My intention today is not to enter into a discussion but to give you a few of my own personal experiences along the line of

eyestrain in adults and the results of attention to small errors. If they have not led me to endorse, enthusiastically, all Gould's claims, they have at least led me to believe that eyestrain is a most potent factor in the nervous breakdowns which occur in adult life; they have led me to believe that it is the small things, the little deviations from normal, the latent imbalances, that so easily escape the attention of the careless examiner and sometimes the careful one too, which make the trouble. They have led me to believe that not a few of the nervous wrecks, attributed to gynecological troubles, gastric derangements, climacteric changes, overwork, neurasthenia, etc., can be made whole or at least greatly benefited, by an accurate correction of eye defects. But to succeed, the refraction work must be done with a care and skill and accuracy that ten years ago were scarcely thought of. The oculist who cannot or will not give the time and labor requisite for the utmost exactness in this work or who does not recognize the importance of these small anomalies is doomed to disappointment as to results.

I have picked from my case book three or four cases to present to you today, illustrating several types of patients who certainly are relieved by lenses correctly fitted, and illustrating also the amount of work required, the time necessary, and the difficulties to be overcome in arriving at a correct solution.

The first case is that of Mrs. S., aged about 30, tall, dark, of a high-strung nervous temperament. She had to leave school at 17 account of headaches and excessive nervousness, for which glasses had been fitted without relief. After leaving school her general health improved, although she still had periodical sickheadaches. She has since married and has one child. During the past four or five years her attacks of migraine have become much more frequent and severe, accompanied by vomiting and blurring of vision, and last from two to five days, during which time she is confined to her bed. In the interim she seems

to be perfectly well aside from a slight nervous irritability. A visit to the theater or some excitement as a game of cards, is apt to be followed by a paroxysm. She has been under the care of a good homeopathic physician for several years, has had uterine treatment galore, vibration, and stomach washing. She lives on migraine tablets. When I saw her first she was wearing a myopic lens of 2 D. with which her vision was apparently normal. Any effort at testing quickly excited accommodative spasm. Under scopolamin and after three different tests, for she was a difficult patient to handle, even the powerful mydriatic failing to control the accommodative spasm perfectly, a small sphere with an $\frac{1}{2}$ D. Cyl. in one eye and $\frac{3}{4}$ D. in the other, both at oblique axes, were prescribed. She had two mild attacks of migraine succeeding the fitting and none since. This patient's *myopia* was over-corrected and her *asymmetrical astigmatism* not corrected at all. Her migrainous attacks were probably coincident with a prolonged spasm of accommodation induced by any slight excess in use of the eyes. Not infrequently there is associated with this accommodative spasm a marked excess of convergence which usually subsides readily when the refractive error is overcome, but occasionally persists long afterward, and unless it, too, receives proper attention, failure to relieve the trouble is almost sure to occur.

My next case, Mrs. B., age 35, had periodical *occipital* headaches accompanied by vomiting and preceded and followed by insomnia and general nervous irritability. Tall, light, of sanguine temperament, active and energetic, she is of a very different make-up from the preceding case. A graduate from a training-school for nurses, she was for two years under the care of a well-known neurologist of the old school and during this time was *twice* refracted. Then she came under the care of a gynecologist of *our* school and later a *general* practitioner who vibrated her and treated her for some gastric derangement.

Finally, in the due course of time she fell into my hands. I refracted her carefully under atropin and my prescription more than doubled the convex lens she was wearing. For two or three weeks there seemed to be relief—then the same old trouble. A careful going over without a mydriatic showed the presence of a variable amount of hyperphoria, but as she seemed to easily overcome it, it did not seem worthy of consideration. During the next six weeks I saw her several times and finally went over her eyes again under atropin, thinking possibly I had missed something, but no change in lens was found. The slight hyperphoria persisting, I added a small prism to correct it and headaches, nervousness and insomnia melted away like mist. This patient differed from the preceding one in that there seemed to be no accommodative spasm. She was very hypermetropic, taking $2\frac{1}{2}$ D. in one eye and $2\frac{3}{4}$ D. in the other. There was no marked convergence excess and the hyperphoria she could at least temporarily control. The most careful correction of the refractive error failed to relieve, but the moment the prisms were added, relief was perfect and has persisted to the present time.

The next case is that of a young lady attending the College for Women, who came to me wearing a convex lens of $\frac{1}{2}$ D. in each eye. She was extremely nervous, unable to sleep and suffered from severe headache after every attempt to study. Her parents had decided to take her out of college lest she break down completely, as the least attempt to do her work was sure to be followed by a nerve storm. A careful examination under atropin proved the whole refractive error to be less than $\frac{1}{2}$ D. far sight, but an examination of the muscle equilibrium showed marked exophoria. No lenses at all were prescribed but exercises to improve the innervation of the internal recti were instituted and relief was perfect and has remained so.

These cases of convergence insufficiency are *very apt* to be associated with *slight* errors of refraction or *none* at all. They

are probably due to deficiency in nerve impulse delivered to the muscle, although they may be due to insufficiency of the muscle itself. A 5° prism base out produced in this patient an insuperable diplopia when I first saw her, in fact crossed diplopia was occasionally present even without prisms. At the end of the treatment she overcame 60° of prisms easily.

The last case I shall recite to you is that of a gentleman of Cleveland, somewhere between 40 and 50, who came to me 18 months ago with his pockets full of lenses of all varieties, fitted by oculists and opticians in different portions of the country, from Portland to Chicago. Until a year previously, he had been fairly comfortable with a pair of plus cylinders axis 90, which if I remember correctly he had been wearing for both distance and near-work. After several months' excessive use of his eyes over some work in which he was especially interested at the time, his eye troubles began. He became exceedingly nervous, reading even for a few minutes was impossible, sickheadaches were frequent, conjunctival congestion was constant, frequent blurring of the vision and hyperæsthesia retinæ was present. Under homatropin he showed a mixed astigmatism, the greater part of it minus; axis one eye 180, the other 165.

This was corrected and as he had arrived at the presbyopic age suitable reading lenses were added. A marked esophoria or convergence excess was present but this condition as has been said before is frequently only a part of the accommodative spasm present. Some relief followed but it was by no means perfect and was very short lived. The examination under homatropin had not been very satisfactory to me, inasmuch as the accommodative strain had not been perfectly overcome, so before attempting any correction of the muscle difficulty, I suggested atropin or scopolamin mydriasis to see if the refractive error had been wholly corrected. The patient, in the meantime, had made a business trip to Detroit and while there consulted an oculist

of many years' experience who diagnosed a choroiditis and advised him that he might ultimately become blind.

Satisfied in my own mind that nothing more serious than a bad case of eyestrain was at the bottom of his trouble, and he being in a position now where the mydriatic would not cause him great inconvenience, I again dilated his pupils, this time with scopolamin. The left lens proved perfect, but the right eye showed a half diopter more of astigmatism at the same axis. These lenses were given and again without relief, so two or three weeks later, prisms bases out were added for the esophoria. Under the use of the prism the accommodative spasm, the headache, the blurring and the nervousness greatly improved and a moderate amount of reading could be indulged in. At intervals he would feel as though he could get along without the prisms but a trial would result in a speedy return to them. Recently, however, they seem to annoy him and examination shows that the esophoria is diminishing. As has been said the convergence excess in these cases is usually associated with the accommodative spasm and disappears with it, but here, for some reason, it persisted long afterwards but is now slowly relaxing. I feel confident that ultimately, unless some real imbalance should be present, that the prisms may be removed permanently. It is peculiarly at this time of life, when presbyopia is appearing and the near point is receding beyond the reading distance, that some of the most intractable cases of eyestrain occur. Business men and women, otherwise apparently healthy, become totally incapacitated for work. Headaches and insomnia attributed to almost everything else are frequent. They are cases, too, in which a correct fitting is not always all that is necessary. The eye is undergoing a readjustment and time and treatment are necessary, and sometimes complete rest must be had.

Now in closing, if you have forgotten all else I have said but have simply gotten fixed in your minds the fact that refraction

work rightly done is by no means the simple affair most people believe it to be, but is really the most difficult and skilled part of an oculist's work; if you have digested the fact that a single examination of the eyes and a prescription of glasses which have failed to make an impression on the case does not rule out the fact that the patient may be suffering from eyestrain, I shall feel that this paper has not been read in vain.

The revolution, indeed, has come, with the new trend in pathology, which at last, with a sigh of, *we can no further!* is turning its attention to the unaccountably neglected pathology of functional diseases. So far as pertains to medicine the most noteworthy characteristic of the St. Louis Congress of Arts and Science was a remarkable unanimity of resolve to attack the pathology of functional diseases. For many years there has been a growing conviction that the work of pathologic anatomy has been yielding less and less valuable results in the prevention and treatment of disease. Its duty has been done and its function has long been practically at an end. All the time the great makers of organic disease, the breeders of the morbid results shown in a million slides, made from dead tissues, have been neglected, almost scornfully ignored. All the time the pathologic anatomist seemed to be indifferent to the habits and conditions, the morbid functions which began long ago in each organism, and which finally produced the diseased condition recognized as anatomic. The preparation of the soil was forgotten

in the supposedly more important question of the seed. That physicians should so far forget the clinical side of their work, symptomatology and morbid physiology, is to be regretted. The dead tissue appeared more interesting than the living, anatomic pathology more instructing than morbid physiology, the end-products of disease than the causes that produced them. Disordered and unhealthy function, even in the anatomicly demonstrable diseases must prepare the way and begin the changes, must at least make the soil for the terminal diseases. It is plain if we are to prevent these end-results we can do so only by attention to the morbid function. The materialism of many investigators possibly had much to do with the overlong absorption in anatomic pathology, as iteration and reiteration was tireless that there are no purely functional diseases. Now that there is a hastening return from such nonsense to saner views, it is seen that the greater part of the diseases which afflict us, those that are the heaviest to bear and the most painful, are precisely those most clearly functional, and which no microscope or stain can detect. What to the anatomic pathologist are fatigue, anorexia, headache, migraine, epilepsy, monomania, melancholia, insomnia, diarrhea, constipation, nausea, dyspepsia, biliousness, seasickness, and dozens of other diseases or symptoms? Every physician should "read, ponder, and inwardly digest" the splendid articles of Meltzer and Sedgwick.

It is, therefore, with especial gratification that one finds one of America's greatest clinicians in general medicine, in an address before the New York Academy of Medicine on gastric disorders so long ago as May, 1894, urging these profound truths:

In the first place, let it be said that the functional gastric disorder is very rarely a primary trouble. In viewing the records of a series including between five and six hundred cases of supposed stomach-disease, in which at least one complete examination of the stomach contents was made, in not one instance can it be said that functional trouble indubitably arose from a disturbance that was primarily gastric. The belief should be stated that a long-continued functional perversion leads invariably to structural change.

The causes of functional gastric disorders are usually some reflex irritation or some toxemia. Your distinguished fellow, Dr. Max Einhorn, in 1893 first described, under the title "*Achylia Gastrica*," a most important condition of the stomach, that was later described by Dr. Allen Jones as "*Gastric Anacidity*." Now, of the cases reported by the latter, together with several others included in the above mentioned series, the majority has been examined as to the existence of eyestrain. Without a single exception in the cases thus investigated there has been found to exist a definite, and relatively speaking, uniform ocular defect, viz.: Unsymmetrical astigmatism of high degree, varying from one to five diopters.

It took eleven years before the President of the American Medical Association, a general diagnostician of the greatest eminence, the Professor of Medicine in a great University, to reach this clean, brave pro-

nouncement concerning "nongastric organic diseases presenting gastric symptoms": *The Eyes*.—*The subject is familiar to all. Who has not seen correction of errors of refraction relieve so-called "bilious attacks," periodical vomiting, anorexia, indigestion, and other gastric symptoms? The cure of grave organic ocular defects relieves similar gastric conditions.* Ten or twenty years or more may be required for such admissions as this of Dr. Musser to get into the textbooks, but soon or late they must now be admitted. Most hopeful is the remarkable allusion of Governor Guild in his Inaugural Address:

A child may be a dullard at school and a failure in life because of undiscovered defects in eyesight or hearing. There are, to quote one line of work only, children now struggling for education through pain, ailing little creatures, backward in their lessons, tortured with racking headaches, who only need relief of a complaining set of nerves by a pair of properly adjusted glasses to transform them to healthy, happy children, capable of assimilating all the benefits of their school work.

Dr. Walton, (*Boston M. & S. Jour.*, June 22, 1905) studied migraine in the blind, and concluded that, "while other factors than eyestrain may act as exciting causes of migraine and migrainoid headaches, still eyestrain is one of the most, if not the most, important of these exciting causes and steps for its relief are imperative."

In the *Journal of the American Medical Association*

of Dec. 2, 1905, there is an article by John Punton, M. D., which shows the beginning of the perception of the true nature and origin of insanity. The writer says:

It is now a well-established scientific fact that neurasthenia, hysteria and allied states are simply the forerunners of actual insanity. Indeed, in the vast majority of instances such neurotic conditions constitute its earliest or incipient stage. Moreover, all authorities agree that incipient insanity is attended with physical and mental changes that are indicative of nervous exhaustion or nutritional defects which thus form its physical basis.

Increasing knowledge of the etiology and pathology of these psychoneuroses also emphasizes the intimate relation existing between them, besides endorsing the significant fact that insanity is but a different phase and further development of the same morbid process which underlies their protean clinical manifestations. Independently, therefore, of the purely physical phenomena that attend such morbid states, the psychopathic or mental symptoms demand our most earnest consideration, for on these hinge not only the diagnosis, but also the prognosis and treatment.

But why wait for the incurable stages of the disease? And why not recognize, as every careful and observant oculist knows, that eyestrain very often produces these preliminary psychopathic states? Insanity is increasing in all civilized countries and almost exactly in proportion to the degree of civilization. There are over 33,000 insane persons in one state alone of the United States. It is time that the tax-payers should ask the

medical profession, and especially the oculists, to do what they can to check the morbid increase and unnecessary expense of the burden.

As a causative factor in the production of headache, eyestrain is most important. Anorexia, dyspepsia, constipation, heartburn, nausea, and repeated attacks of vomiting, represent some of the gastric reflexes. Amenorrhea and dysmenorrhea are menstrual anomalies sometimes caused by eyestrain. Insomnia, nightmare, chorea, nocturnal enuresis and even epileptiform seizures have owed their existence and perpetuation to uncorrected eyestrain in some form. The multiformity of the effects of eyestrain can be thoroughly realized only when it is understood how vital the function of vision is to every act, emotion, and thought. The visual apparatus is in closest connection with the other higher nervous mechanisms, and the slightest disturbance of the visual portion may produce irritation in the entire motor, sensory, and psychic systems. Happily, the manifold effects of eyestrain, so long ignored, are now being appreciated and recognized. [Cohen, *System of Physiologic Therapeutics*, Vol. VII, p. 367.]

The medical profession and its patients owe to a physician of Philadelphia—Weir Mitchell—the recognition of the part played by eyestrain in causing or aggravating many nervous and other disorders. They are further indebted to Wm. Thomson, Wm. F. Norris, and other ophthalmologists of Philadelphia for the development of Mitchell's discoveries; in especial to George M. Gould for clear perception of the important place of ocular disturbances in medical diagnosis, and the reiterated teaching needed to make this knowledge an integral part of the general professional consciousness. It seems appropriate, therefore, that a treatise like the present, emanating from Philadelphia, should give the subject its deserved prominence, probably for

the first time in general therapeutic literature. [Cohen's Preface to *A System of Physiological Therapeutics*, Vol. VII.]

Important, exceptionally important, because the American Ophthalmological Society has never in all its history heard or allowed any such an admission, are the following words by Dr. Randall, of Philadelphia, at the 1905 meeting:

"If I know anything in Ophthalmology it is the occurrence of anatomical lesions of the eye, in the retina, choroid and other portions, as well as various reflex neuroses, as a result of eyestrain. . . . I have seen epilepsy mitigated so much that the sufferers practically ceased to have attacks. As to the production of choroidal irritation . . . such conditions frequently arise from eyestrain."

The Director of Physical Training of the New York Public Schools, Dr. Gulick, says: [*N. Y. Med. Record*, July 28, 1906.]

Vision.—However perfectly the school building may be ventilated, with what degree of perfection light may be regulated and admitted, temperature controlled, humidity adjusted, the desk perfectly fitted to the individual, periods of sitting still shortened, and periods of varied bodily and manual activity lengthened—the central difficulty of school life remains. It is a difficulty which is dependent upon the fact that the treasures of civilization are stored in print—in minute black marks upon a white surface, which must be held relatively close to the eyes. This involves a conscious attention and strain of the ocular apparatus to which it was not adapted during the long ages when it was being developed. Even under the most favorable condi-

tions, the strain of civilization rests most heavily upon the child with reference not merely to the eye, but also to the nerve centers back of the eyes, and to that very great symptom-complex which is associated, as we have only recently discovered, with eyestrain.

Examinations made in many cities and those made in New York under the direction of the Board of Health, have satisfied us that not less than 30 percent of all children in our elementary schools are suffering from ocular defects demanding correction, and not less than 17 percent have ocular defects so severe as to be a serious menace to their progress. These defects acquire their significance, not because they are defects merely, but because they are defects of that portion of the human organism upon which learning and education largely rest. The relation of this condition to school work is shown by the fact that ocular defects are in direct ratio to the length of time the pupil has attended school. This is the point of strain, this is the point that demands more aggressive and constant safeguarding than any other of the systems of apparatus that we each possess.

According to the last report of the London County Council it was found that in 61,676 children examined, one-third fell below the standard in visual acuity. This was, of course, with crude nonmydriatic examinations, and as most all American oculists know, those having fair acuity but severe eyestrain outnumber the others, and it is precisely these that need glasses the most to protect the general system from reflex diseases. Despite this the oculists of the London schools say:

"It is commonly supposed that almost every child with defective acuity required glasses, but there could be no greater mistake;

some can get no improvement from glasses, some will do better without glasses, a very small number are found with defective visual acuity and no refractive error, and in the course of one or two years ultimately attain normal vision. Viewed from a wide public health point of view, it ought not to be necessary for a considerable percentage of children to wear glasses. The rational treatment of most of these children should be an educational modification which avoids the necessity of glasses."

There could not be greater error born of superabundant stupidity than is exhibited in this preposterous nonsense. It is the voice of the Middle Ages, the gibbering, as Macaulay would have said, of the ghosts of the dead sitting on their own graves. The profession has always been opposed to glasses until recent years, and the work was relegated to opticians until about fifty years ago. The Paris College of Physicians excluded from membership those whose work was the selecting of spectacles. Down to the middle of the last Century physicians advised against the correction of optical defects, and ascribed eye diseases to the use of glasses. There are a number of famous American oculists who today carry on the same superstition, and boast that they "cure patients by taking glasses off." They are those, of course, who know nothing of refraction, and who jeer at the New Ophthalmology. If they could prescribe correct lenses they would be believers in right glasses, because they would cure their patients. If taking off incorrect lenses cures, then

logically lenses have power for evil; and if they can harm, they may, therefore, be made to help. But when these bunglers are compelled to prescribe glasses, the patient and the next oculist consulted should remove them speedily!

All this "conservatism," ignoring, opposition, and bickering, as regards the New Ophthalmology has a profound and startling relation to quack ophthalmology. The newspapers all contain advertisements of traveling opticians, and oculists with and without the M. D. degree; "optometric specialists" and "optical schools," are multiplying all over the land. What are we going to do about it? We will do nothing, and we can do nothing. As a profession, both general medical, and specialist ophthalmologic, we are as busy creating these quackeries as we can possibly be. The people are learning and the optician-refractionists are learning the frequent dependence of headaches and a hundred systemic reflexes upon eyestrain. They can often refract as accurately, more accurately, some of them, than the regular City oculist who does his work in the way the jeerers at the New Ophthalmology do their work. But the ignored and terrible truth remains, as the best opticians and their journal contend, that few even in the cities can get expert work done (not by the hospitals and dispensaries, heaven help us!) and over 60 percent of people needing scientific refraction cannot visit the cities or pay the expert's fees.

In one city, by a careful inquiry, I found that twelve of the principal oculists charged regularly on the average \$24.00 per patient for their work of refracting and for prescribing glasses. Add the traveling expenses and the cost of spectacles, and it is readily seen why the vast majority of people of the country, of the villages, and of small cities must turn to the optician and jeweler, the traveling quack, or the horde of deplorable wretches who peddle spectacles, in places hundreds of miles from a reputable oculist. If the patient were minded to seek the city-man's advice the chances are that he would fall into the hands of "the leading oculist" who refracts by machinery, without a mydriatic, and with the prejudice and "science" of the oculists of the London County Council.

The chief supporters of such prejudices and such "science" are the commercial medical journals. They miss no chance to sneer at refraction specialists, to accept and print all worthless stuff offered against the eyestrain theory, and "extremist." I have long been watching the antics of the editor of one such journal; once in a while he unwarily accepts, or is forced to accept, an article on the other side. His efforts to get rid of it, to keep up an appearance of decency to contributors, are amusing. When he cannot do anything else he tries to wear out the patience of the author by holding his article in type and unpublished for several months or a year.

One reviewer says that the rejection and ignoring of all medical discoveries are due to justifiable conservatism instead of to skepticism—an execrable misapplication of terms, and a worse excusing of brutal neglect of patients. The “conservative” is usually one who openly pretends to conserve truth; he aims secretly to conserve himself; he always ends by conserving error. This reviewer’s saying wholly ignores the millions who have been allowed to suffer and die because the leaders and judges led the old error and judged wrongly of the new truth. For 30 or 40 years one-third of our people and patients have been denied the relief and health that was their due, while Drs. Roosa, Davis, Dana, Fisher, Knapp, Howe, Casey Wood, and others have publicly refused to allow it, and thousands of others have been intimidated into the same hideous error. This should not be an affair of prejudice, of professional reputation, of “science,” of “extremism,” but simply one of testing, of fact, of desire to give every patient every chance to get relief. An earnest wish to benefit the patient would any time in 30 years have brought health out of tragedy for millions of our patients. “‘Dangerous’ to try a pair of glasses”? A true physician would have found it “dangerous” *not* to try them! The cruelty of it all is amazing, for it is equally cruel whether either horn of the dilemma is chosen; if it is due to prejudice it is a crime because a scientific man has no right to be prejudiced;

if it is due to stupidity, it is "a blunder worse than crime."

For, as I have said,* "that a vast majority of all cases of headaches—certainly nine-tenths—are due to eyestrain is a truth beyond question with all who have had experience and who know. That with headache, and often without it, a large indefinite proportion of digestive, nervous, and psychic disease is due to the same cause is quite as true. A few cases may be due to malfunction or organic disease of other organs, but it is not known in how many of these cases eyestrain is the primary cause of these extraocular diseases; it is also unknown in how many the eyestrain may be the direct and contributing cause of the headache ascribed to the extraocular disease. In 31 years the members of the American Ophthalmological Society have contributed three papers suggesting that eyestrain is the cause of some headache, and one member has contended that nasal disease, not eyestrain, is the cause of frontal headache. But there have been 122 papers on ocular tumors, and many hundreds on ophthalmic surgical subjects. Medical opinion in Continental Europe has never heard of eyestrain as a cause of anything, much less of extraocular disease, and in England professional pandiculation is confined to a very few 'extremists,'

* Section on the Practice of Medicine, American Medical Association, Boston, June 8, 1906, published in the *Journal of the American Medical Association*, November 10, 1906.

the mass still dreamlessly sleeping as sweetly as their Continental brethren. In our country the testimony as to the role of eyestrain in producing headache is positively overwhelming, but the great body of our medical men are still begging for 'just a little more sleep, a little slumber, a little folding of the hands to sleep.' As to the ocular origin of much neurasthenia, gastric disease, general ill-health, suicide, etc., we have only got as far as nightmare.

"What are the results of this professional narcotism? These:

"1. The country practitioners, and some of the silent modest general physicians of the cities are awake to the possible ocular origin of these headaches, etc., but the so-called leaders, the writers of textbooks, the members of the professorial class—all these, except one or two, are wholly indifferent to the matter. The textbook of Allbutt is described as the best on General Medicine in the world. It contains not a word upon the subject of the ocular origin of headache, or the ocular origin of any other disease, not even the psychic disease of textbook makers.

"2. The general medical profession of America is a hundred times more conscious and acknowledging in the matter than the oculists. It is, of course, beneath the dignity of most neurologists to care about the cause or the cure of any disease. While the Governor of Massachusetts in his Inaugural Address says that untold

numbers of children are becoming ruined in health because of headache, eyestrain, etc., leading members of great ophthalmic societies ridicule such folly. While one great diagnostician says that all sorts of gastric diseases, as is 'familiar to all,' are often due to eyestrain and cured by glasses, all the stomach specialists in the world, and $\frac{2}{100}$ of the oculists in the world deny the truth. While a great New York surgeon says he refers a large proportion of his patients threatened with abdominal operation to the oculist, who cures them brilliantly, the entire ophthalmic profession smiles inaudibly at this supposed 'extremism.' While the best orthopedic surgeon in Philadelphia publicly states that a large proportion of cases of lateral curvature of the spine are due to ocular strain and ocular function, ophthalmologists are silent, or sorrowfully groan and squirm. While medical journals are teeming with reports of the world's greatest scientist as to the sleeping-sickness in Africa the appalling sleeping-sickness at home does not at all interest. While from 40 to 60 percent of school children, by actual examination, are suffering from the systemic effects of eyestrain, and while great school teachers are trying to get the oculists to stop it, famous ophthalmic specialists are pretending to refract without a mydriatic and with the ophthalmoscope or the ophthalmometer alone, and of course the spectacles they prescribe are ludicrous blunders; consequently their pet amusement is to guy the 'eyestrain faddist.'

The professor of medicine in a great university medical school writes me that, excepting one, he cannot make the oculists of his neighborhood believe in the eyestrain origin of diseases demonstrably due to eyestrain.

"Now, gentlemen, I could enumerate things of these kinds for an hour, but as my five minutes are closing, I wish to ask you the reason for such a topsy-turvy world. Why are we caught in such a set of contradictions and absurdities?

"The answers are many, but there is only one that can be emphasized here. It is absolutely decisive. As general practitioners you desire to cure your patients. You are not, most of you at least, professors, mixed up with, and your personalities enslaved by college rivalries, hospital cliques, and personal ambitions. You don't care a button, for conservatives or extremists, but you desire first of all the truth, the knowledge of the causes and the cure of diseases. The single explanation of all this wrangling and misunderstanding, is that refraction is not a science; your refraction-work is not well done. If the experiment could be rightly carried out, of ten or of fifty different prescriptions for the eyestrain of one and the same patient, by as many different oculists of different cities, even in America, no two would probably agree. The test of the eyestrain theory has never been made; no attempt at it has been made. There is no uniformity of teaching as to the science and art of refraction. If our car axles,

dynamos, watches, engine valves, and thousands of instruments of precision were made with the lack of precision customary in the diagnosis of refraction errors by the oculists of the world, our civilization would come to smash in 24 hours. If the truth of the eyestrain theorist is to be tested, there is only one pair of lenses which can cure a certain patient. There is not a serious and adequate school of refraction in the world, not an attempt to establish such a school. Until you establish such a school the most of your attempts to cure your patients of headaches, neurasthenia, disordered nutrition, functional gastric, intestinal, and abdominal diseases, many nervous and mental diseases, etc., will generally end in failure.

“Moreover listen to this:

“Wilson, of Montrose, Pa., (in the *Journal of the American Medical Association* of May 19, 1906) thus puts his finger upon this ailing place:

It is a fact that nearly all of the headaches just above and back of the eyes are caused by defective vision and that large numbers of school children go to their physicians and are given headache remedies without end. This is to no purpose, and they finally have to give up school on account of becoming nervous wrecks, unless by chance they happen into some jewelry store and are given some kind of lenses to wear which may relieve the trouble to some extent. The country physician, therefore, should take up refraction work. The great mass of working people simply cannot pay the fee demanded by the oculists and are forced to put up with the indifferent work of the so-called

opticians. Two or three hundred dollars will buy the necessary equipment and a month's work in some eye infirmary will give one a start, and one can do as well at once as any optician will ever be able to do.

"As a profession and as specialists we have not raised one finger to prevent or to undo the deep disgrace hinted in these lines. There is not a single adequate serious school of refraction in the world, nor is there a sign that one is coming. Yet such a school is more needed than all the ophthalmic departments in all the medical colleges and hospitals of the world. If there are a few careful and skilful refractionists in the United States who might agree in their diagnosis of one case, there are 5,000 who would disagree, disagree root and branch. There are whole states and territories, whole sections, in which no poor person can possibly get such medical service.

"Moreover, there are at least 15 millions of American children and adults afflicted with lateral curvature of the spine. All the smiles of incredulity will not, alas, lessen the number, nor the horror of the consequences of the abnormalism. There is no existing machinery, no care or solicitude to prevent the sufferings, none to prevent the very existence of these millions of scoliotics. The defect arises unknown and unsuspected by physicians and by orthopedists; when it is incurable the orthopedist learns of a few of the cases. Surely over 90 percent of these scoliotics owe their tragedies

to ocular function and malfunction, readily demonstrable, and its results always preventable. Two months ago, for example, a child of five years of age was brought to me with many complaints, vomiting of food, peevishness, ill-health generally; a nurse and a physician were retained as constant attendants of the child. I found a grade of astigmatism so low that great authorities publicly to the profession and daily to their patients state that it is useless to correct. Both axes of this astigmatism were 105° , a defect that produces head-tilting and spinal curvature. The child had both. Glasses were applied, and since then the head-tilting and the incipient spinal curve have disappeared, there is no vomiting, no drugs are now required, there is steady gain of weight, there is complete return to normal health. What would have been the life-history of this little one had it fallen into the hands of the 'ophthalmic surgeon' who scorns the refractionist; who sneers at functional and beginning disease; who does his refraction with the ophthalmoscope, and without a mydriatic; who loves surgery 50 or 500 times as much as he does the prevention of disease; who loves surgery 5 million times as much as he loves the prevention of surgery; who is 40 or 100 times more interested in a sarcoma or an osteoma, or a coloboma, than in the headache and vomiting, and 'neurasthenias,' and suicides of his patients? Physiologic pathology, not the outworn and senile anatomic

variety; attention to functional rather than organic disease; clinical rather than laboratory investigation; common sense rather than ultrascientific medicine; prevention of disease as well as the cure of it—such will be the watchwords of the future. The patients' interests are first to be conserved rather than the success or ambition of the physician, and decidedly before those of the profession. A little knowledge of biology would have spared the profession the shame of the last thirty years as regards eyestrain. The eye is the mechanism to guide locomotion. *Ubi motus, ibi visus*. It is the prerequisite of every act. If inexact it becomes pathology, and most all our civilized vision is pathologic; thus inaccurate and morbid vision may and does produce, directly or indirectly, any of the diseases of civilization.

“At present we oculists are most busy and earnest, and effectively so, in creating ‘fake’ Ophthalmic and Refraction Schools, refracting opticians, peripatetic spectacle peddlers, and quack M. D. oculists. These things are the direct result of our neglect, our bigotry, our money-making, and our pseudoscience. No blame, of course, to them who make their chief corner-stone the block we have rejected. At present osteopathy is influencing legislatures, and ignorantly, but far more successfully than many of the profession, it is treating the millions of distorted or weakened and diseased backs and bodies of our people; we neglect the study

of the spinal column utterly and wholly in the functional and beginning stages of lateral curvature. Osteopathy is a product of our professional neglect and bigotry, and especially of the ophthalmic variety.

“Great surgeons and orthopedists say, if a child does come into their hands with lateral curvature—‘O, let it go; give it some exercises; it will get well as it grows older.’ If they pretend to treat it at all, they give it over to a nurse to handle. In truth they do not treat it until they can treat it surgically; and there was never a case of organic lateral curvature cured, either surgically, or by all the horrible torture-chamber machines a Hoffa could devise or picture. Not a man knows the cause of this defect, and how, therefore, can there be a cure? The Superintendent of Schools of New York City orders his hundreds of thousands to carry their books upon one side one-half the time, and on the other side the other half. In this same city great classes of poor children are formed in lines and taught to bend their bodies at command to one side, and then to the other. Better would it be to hold a black cat over the cross-roads at midnight and mumble a charm! Osteopathy is a wretched thing, but it often cures and, however, blindly and stupidly, it is making some sort of use of deep massage, the stone which the medical architects refused.

“Eddyism is rampant in the land and professionally we are responsible for Mrs. Eddy and her foolish

children. We have, as medical men, wholly neglected the attitude of mind of the patient to himself and to his disease. Especially to *her* disease! We have been so absorbed in our so-called 'science,' our professional dignity, our personal reputation and success that we have forgotten the first duty of any human being—the duty to be kind, and to take a personal interest in each other as individuals, especially if they are our patients. The second duty we also forgot: to be sincere, to believe in ourselves and our therapeutics.

“With all the follies of faith-cure and of unchristian unscience, the Eddyistic sillies did not forget those two fundamental duties. Again they made use of our refused quarryings as corner-stones of their healing temples. It is ridiculous bigotry to make fun of the quacks we ourselves allow or create. These quackeries are not made entirely of follies, and greeds, and stupidities. And our medical practices, 'scientific' and 'ethical' as we fondly imagine them to be, are not without elements and alloys of quackery, folly and greed. The more conservative, the more 'scientific,' the more self-satisfied, the greater, usually, is the alloy of quackery. Especially in the cities; especially among the leaders, the professors, the textbook makers; especially among the specialists. The hope of progressive and helpful medicine lies in the country practitioners, the modest unknowns of the cities, the protestants and extremists. Anything, even earthquakes—

are needed to shatter the complacency of the success hunters and of the success getters. Every textbook, monograph, and medical journal article will be revolutionized when your oculists agree; they will not agree until you as general practitioners secure the establishment at least of one serious refraction school, with a two-year, or a three-year obligatory course of post-graduate study. And this as general physicians is your concern. You will be compelled at last to force us to our long neglected duty.’’

THE CAUSE, NATURE, AND CONSEQUENCES OF EYESTRAIN.

CHAPTER II.

THE CAUSE, NATURE, AND CONSEQUENCES OF EYESTRAIN.*

No questions are so often asked of the oculist by his patients as, "Why do so many people, and even children, have to wear spectacles nowadays?" "Are we deteriorating?" "Are eyes so much poorer than formerly?" "My grandfather did not wear glasses," etc. Each oculist meets the questioning in his own way, but the public still remains unconvinced, suspects there may be some mistake about the whole matter, and is at least mystified.

It is hard to give satisfactory answers, at the best and with all one's good will. Not a little of our inability to throw light on the subject comes from our own indecisions and nonunderstandings. About many of the phases of the matter we have not reached a common conclusion and our professional differences of opinion bring further doubt to our patients. Concerning other parts we are also utterly unknowing ourselves, because the mechanics and neurologics of sensation, mentation, and even of nervous force and transmission, still remain utter mysteries to all. Of

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these things the most learned are as ignorant as the most unlearned. We see or conclude that certain trains of ether-waves with a vibrational periodicity of some 400 to 700 trillions per second are transformed somehow into retinal and neural bundles of forces traveling only at the rate of about 125 feet per second; thence proceeding to the cortical visual center they are again transformed into what we call sensations of form, light, and color. And innervational forces are sent back to the muscles of the eye-ball, which move it as a whole, or modify its internal functions. Although we can know nothing of the intimate nature of these mechanisms and forces, we can deduce many definite, though crude, conclusions as to their causes and their results.

The dominating demand which governs all the processes concerned is for an accurate and accurately focused image upon the retina of the object upon which the eye is trained. All human physiology centers in that success, and much of our pathology follows from its failure. That there shall be two such images upon "identical points" of the two retinas only heightens and complicates the difficulty. The clearly defined perfectly-representing image upon the retina is purely a matter of optics, physical and physiologic, and may be understood by any one who knows how his kodak takes a picture. To realize the difficulty of the kodak of the living eye, one must have an adequate conception

of the variations, only one two-hundredth or one four-hundredth of an inch from the normal in the dimensions of the eye-ball or in its corneal curves which may prevent the accurate photographic "definition" of the retinal image. To this must be added a knowledge of the means or lack of means possessed by the eye to overcome or neutralize these results of deviations from the standard of size and contour. What are the kinds of deviations that may be cancelled, how far the neutralizing is possible, what kinds may not be overcome, and the mechanism of the overcoming, these are all pretty well understood.

In the briefest way we may say that if an eye-ball is too long (from the cornea to the retina) it is near-sighted or myopic. One cannot see well at a distance, for everything appears blurred and hazy. The focus of the image is in front of the retina, and there is no device of the unaided eye which can transpose it to its proper position upon the retina. Any effort to do so is by the nature of the conditions a negative one, an endeavor, if one may so speak, and of course, unconsciously, to lessen muscular effort. There is as result no eyestrain, no morbid, or wearying, or hurtful attempt at muscular exertion.

The supposition, in this case, is that a pure or uncomplicated myopia exists, and that it is of the same degree or amount in both eyes. In truth, however, that supposed condition never exists. No oculist probably ever

tested a pair of eyes having no astigmatism, and having exactly the same overlength or myopia. And this astigmatism, or the difference in lengths of the two eye-balls, or both factors combined, brings always the possibility of "eyestrain." For eyestrain is the name given to any unphysiologic, *i.e.*, pathologic ocular action or function which is wearying, excessive, or unnatural. It thus becomes clear how it is that the two eyes by reason of the presence of a difference in their relative lengths, or because of astigmatism in one or both, may result in morbid effort or strain, although if both were alike in overlength, and without other optical defect, there could be no such strain. This general fact makes evident the truth that in general those with (moderately) myopic eyes have far less ocular diseases and pains in the eyes, less headaches and other general disorders, than those whose eyes are hyperopic, or "far-sighted." For in all "far-sighted" eyes there is a never-to-be-renounced effort to overcome the trouble. But this freedom from pain and other symptoms in myopia may lull the patient with a false security and costly neglect. The great danger is that without the attention of a skilled specialist the myopia may increase, become "malignant," as it is termed, and the eye-ball continue to elongate, with imperilled or fatal loss of vision. The myopic eye is one abnormally elongated, enlarged or stretched, and once having lost its tonicity or normal measurement it tends to extremes of enlarging.

The far-sighted or hyperopic eye is the reverse of the myopic eye: It is too small or too short and hence effort and muscular exertion are necessary to bring the image forward, in proper definition upon the retina. Without this exertion the image would be behind the retina. Hence a similar blurring or badly defined picture as in myopia, but from the reversed cause. In this kind of eye the picture is naturally blurred even of the most distant object (making the term far-sightedness a misnomer), and a slight increase of focusing-power is required on the part of the "accommodation" mechanism in each eye, in order to shorten the focus of the image-forming rays of light. With every lessening of the distance of the object, still greater converging power is demanded, as one may understand by tests with different power glass lenses.

When the object is brought within ten or fifteen inches of the eye the greatest effort is required to make the image clear. The degree of this effort will depend upon how much too short the eye-ball is, or upon the amount of hyperopia. It will also depend upon the kind and amount of ocular labor, especially the continuance of "near-work," the reading, writing, etc., required of the eyes. The farmer, ranchman, or sailor will obviously be able to overcome or be indifferent to higher degrees of far-sightedness than those living in cities, while the literary man, bookkeeper, or seamstress will experience eyestrain with still lower degrees of hyperopia.

One must carry in the mind another modifying condition—the difference almost always existing between the far-sightedness of one eye and that of its fellow. The two are under more stringent orders than in myopia to work together and in harmony. When the hyperopia differs in the two the chances of strain are obviously increased many times.

These chances already multiplied now become inevitables if astigmatism is a complication of the hyperopia. Alas, also, it is very certain to complicate. I have measured something like 10,000 pairs of eyes, and not one of these pairs was without some imperfection of shape, size, or curvature, either in one or both of the eyes. An absolutely perfect pair of eyes does not probably exist.

“And do tell me, what is astigmatism?” is the puzzling question put to the oculist every day. It is one, fortunately, very simply and easily answered. The front part of the eye, that behind which lies the pupil, is called the cornea. It should be round or equally curved like the central portion of the end of an egg. It is usually not uniform in its curvature, but is more curved in one meridian than in the reverse meridian—that is, it is, approximately, of the shape of the side of the egg. When symmetrically curved it will naturally refract, or help to focus, correctly, the entering cone of light which is to form the picture on the retina. If it is unsymmetrically curved, like the side of the egg, it

will produce a misshapen and unsymmetrical picture which does not accurately represent the object. The condition of safety, right movement, and proper "sense-ing" of the world thus depends upon the exactness of this image-making power of the eye. It seems probable, indeed, that one of the greatest factors in the survival of the fittest or in the elimination of the unfit, in biologic and social evolution, has been this overlooked optical inaccuracy of the eye. In the chase, in battle, in games, in all tribal and industrial competitions and tasks, the imperfectly-seeing must have gone down before those whose eyes saw more perfectly and whose answering hand and foot executed the precedent ocular command more speedily and precisely.

The malcurvature, or astigmatism, of the eye, may obviously be of widely varying degrees, and may be placed in any possible one of the 180 degrees of its half-circle. So infinite are the permutations of these amounts and placings, and so complicated may astigmatism be with any kinds of short-sightedness or long-sightedness that, as emphasized, in all probability no one eye in the world has identically the same optical measurements and powers as another. No pair is without optical imperfections and none has exactly the same ones as those of any other. The chief and continuous cause of astigmatism is the pressure of the upper lid upon the cornea just at the upper edge of the pupil. The astigmatism in the vast majority of all eyes shows

that the cornea is curved more in its approximately vertical than in its horizontal meridian. The few cases in which this kind of curvature is not present are really "exceptions which test the rule." The habitual placing of the upper lid at this precise line of the cornea is caused by the necessity of shading the cornea or protecting it from the light which would enter from above and dazzle or harm the delicate retina. Every one when facing a bright light has found how bad vision is for at least some minutes afterwards. This semiparalysis of retinal function would make activity slow and inconsequent, if not often jeopardize life. It has been a helpful factor during the evolutionary struggle in preserving the organism.

A study of the position of the upper eye-lid and co-ordinated pupillary movements in animals would show each type meeting or avoiding the difficulty by many devices. In such animals as fishes, birds, owls and many forest-roving animals there is danger from above as well as below, so the upper lid is kept well retracted and the pupil wide open. In the owl the pupil is large even in daylight, and hence this bird is then in a dazed condition of mind, and flight is dangerous. The mechanisms designed to give definition to the retinal image, to shade the retina so that it may recuperate its sensibility for the next instant's instantaneous image accentuate the fact that the formation of the retina was perhaps the most difficult task encountered in the

development of higher forms of life on the globe. All organic success depended upon that special success.

And few have the most dim notion of the complexity of the organ of vision in man, or of the amazing difficulties of "Biologos" in fashioning and perfecting it. Millions of "finger-tips" are bunched together in the one-inch cup of the eye-ball from whence run about 425,000 nerve fibrils to a topographic mechanism of sensation in the occipital lobe. The eye can see an object $\frac{1}{10000}$ of an inch in diameter. The cones and rods are only $\frac{1}{100000}$ or $\frac{1}{140000}$ of an inch in diameter, and a million cones at the macula occupy a space of only $\frac{1}{10}$ of an inch square. These crowded "finger-tips" perceive the shape of the picture and the intensities of the light stimuli of all illuminated objects, of a millionth of a millionth of the kinetic power of any other physiologic force, and of so short a duration as the 0.00144 of a second. And out of these infinitesimal waves the sensations called light and color are created. The mechanism which creates them must be in intimate and instant connection with the centers initiating and controlling every other sensation, of every motion, of every muscle of the body. Imagine for an instant what takes place in every animal and human being every day of its existence: *e.g.*, a traveler tells of a monkey pursued by another, and running over and through the tops of the trees of an African forest faster than a deer could run on open ground. The flashing repetitive moment-

ary glances of the eyes, before, back, and all about a hundred objects must be coordinated with a mathematical precision to accurate unity and brilliant action of every muscle of the body. Similar perfection of eye and motion has been evolved in every higher animal of the world, and in every savage, and in every child. In man there is no danger from above, the eyes are rarely raised to the sky; the pupil consequently has a wide range of movement, and to shade the pupil the lid drops to its upper border. Doubtless we possess a more appropriate color sense, retinal discrimination, and visual judgment because of the device.

The need of a shading of the retina to produce clear and quick imaging, "resensitizing of the visual purple" it has been called, is so great that there are distinguishable a surprising number of separately-acting mechanisms, all working to this end:

1. The shadows cast by the retinal arteries, veins, and capillaries.
2. Reflections and shadings from the individual corpuscles of the blood in these vessels.
3. The shadings of vitreous cells called *musca volitantes*.
4. The pigmentary layer of the front part of the retina continuous with that of the iris.
5. The iris-pigmentation, lack of which constitutes the tragedy of albinism.
6. The continuous narrowing and widening of the pupil.
7. The pigmentation of the skin of the lid, and the comparative opacity of the lid-structure itself.

8. The eye-lashes have an additional screening function, while allowing vision or suggestion of an object above.

9. Winking shades the retina entirely every few seconds of the waking life.

10. The possession of two eyes with their associated movements constantly varies the light-stimulus, shading, etc., more than would be the case in a cyclopean eye.

11. Incessant movement of the eyes accomplishes the same object. Looked at steadily an object is lost from view, especially if it be brightly illuminated.

12. The eye-brow serves as a shading device. In old men, when the retinal sensibility is dulled, and more slowly recuperated than in youth, the eye-brow hairs often take on a luxuriant growth.

13. The retraction of the eye-ball, by the absorption of the orbital fat, especially in the aged, serves in the same way toward additional shading.

14. The habitual position of the upper lid across the upper edge of the pupil works clearly to the same end. It is so necessary that it must be allowed although it brings with it a new source of evil.

For with this pressure of the lid comes astigmatism—one of the greatest causes of suffering in all civilized societies. There is probably little or no astigmatism in the eyes of those animals whose lids are habitually retracted—"wide open," as the birds, fishes, and many of the mammalia. The outward pressure of the fluids within the eye-ball tends to keep the cornea taut and symmetrically curved.

The "accommodation" function of our eyes is their

power to focus equally clearly the images of objects at a distance and those near the face. Its mechanism is the crystalline lens, controlled by the ciliary muscle. The lens has an innate and spontaneous elasticity which gives it the ability to increase its refractive power required as an object is brought nearer the eye. This increased refraction is incited by the contraction of the ciliary muscle. This act is called accommodation. As has been said, it is little exercised in myopia, and hence there is little pain or "eyestrain" in purely myopic defects. In the condition called emmetropia, or optical normality (only approximately existing), it is called into use, and increasingly with every increase of nearness of the object looked at, until its extreme is reached when the object is so near the eyes that it is not clearly seen, that is, with accurate focus, or clear photographic definition.

With this point reached in our exposition we come upon the heart of the matter, which is this: In the ages of past evolution the safety of the organism has depended upon sharp distant vision—the more or less distant, from the horizon to a few feet from the eyes. The mechanism of accommodation has been evolved in answer to this need. The nearer an object the less continuously must accommodation act, the less uninterruptedly was the contraction of the ciliary muscle. The extreme of muscle tension or contraction, the full force of its innervation can only be carried out for the

shortest periods of time. That is the great law which dominates the action of every muscle of the body. If its contraction is kept up continuously for too long a period the result is not only weariness, but spasm, exhaustion, pain, disease, etc., and physiology passes into pathology. Carefully analyzed there will be found no muscle in the body which can endure continuous contraction except for a short time. Tests of holding the arm out straight, carrying a light satchel in one hand, etc., are familiar. Most muscles called into continuous action show that the continuity is an interrupted one, and that there are necessary rhythms of contraction, relaxation and rest. The genius of evolution so far as the eye is concerned, never foresaw the demands to be made upon the organ by our modern life. In but one or two hundred years since printing, urbanization, commerce and the rest have sprung into existence, the entire process, ocularly speaking, has been reversed; before this it was an intermittent and temporary function, while that of reading, writing, sewing, and handicrafts demands a focusing of the image of objects at twelve or fifteen inches from the eye; this for millions has now become a continuous one. For all hyperopic and astigmatic eyes the act of accommodation is required for ten or fifteen hours a day, often for hours with hardly a moment's interruption. This unwonted demand requires the continuous innervation and contraction of the ciliary muscle. To comply necessitates an

impossible task, considered physiologically; the result is eyestrain with its host of sequent diseases, far-away reflexes, headaches, nervous diseases and kinds of ill-health too numerous to enumerate.

If the hyperopia were alone present, and especially if the amount were alike in each of the two eyes, cerebral ingenuity could cope with it with far less disastrous results than are everywhere shown. The eyes are seldom alike and the evils multiply. But they become genuinely morbid with the complication of the usually-present astigmatism.

The ciliary muscle is a "sphincter muscle," fashioned in a circular manner about a central point, and by its very nature it must act by an equal, or comparatively equal contraction of all its parts. Astigmatism is a defect acting in a line across the structure, and hence to neutralize or compensate, the ciliary muscle is called to act against its structure and nature upon two opposite sides, those parts at right angles not acting. Hence the impossibility of overcoming the defect, at least in but a limited and partial, and always unnatural, way. The higher the astigmatism the greater the limitation and impossibility. In the high degrees it is frankly out of the question, and the retinal together with the sensation-making function is hurt by the false and blurred image, and vision deteriorated. "The old ophthalmology," still ruling unquestioned in Europe and largely everywhere, looks upon the correction of

astigmatism by glasses only as a means of giving better vision, and so corrects only the large errors. It forgets that in these large optical defects the ciliary muscle renounces effort, and that the smaller ones are precisely those which produce the worst morbid results, because the strain of accommodation, or continuous contraction of the ciliary muscle, can never be renounced. This constitutes the predominant source of eyestrain.

There are several other misfortunes or imperfections of the accommodation mechanism which may not be neglected if we wish to understand the matter in all its bearings. The crystalline lens must of course be transparent, hence it cannot be nourished directly by the blood with its red corpuscles. Its healthful action is, therefore, dependent upon nourishment by blood-serum alone—plainly a difficult task, especially as this serum must reach it indirectly by osmosis, filtration, etc. It has also no nervous connection with the brain, and the three conditions named conspire to bring about two most noteworthy faults in its life-history. It is prone to become nontransparent or opalescent and, finally, almost opaque in the old, and this is cataract. Its elasticity also decreases steadily from childhood until it is so inelastic at about 45 years of age that the “range” or degree of accommodation becomes too limited to enable it to focus the images of objects clearly on the retina except by holding the book, for instance, too far from the eye. This is the beginning of “presbyopia”;

at about sixty all the elasticity of the lens is lost and accommodation is at an end. Moreover, oculists have been hitherto unmindful of the fact that the accommodation may be less than normal in many young patients, even for short tasks. It is always so for long and continuous ones. For presbyopia, there is no prevention and no cure. There is a makeshift device (spectacles) whereby we may supply the lost focusing power of the living lens, by glass lenses placed in front of the crippled "crystalline lens". Of cataract, however, there is a pretty sure method of prevention, and this, again, is spectacles.

The science and art of correcting or neutralizing these optical defects of the eyes—myopia, hyperopia, and astigmatism—is by means of artificial optical lenses. First, be it noted, it is a medical art and science, which no optician can compass. He has neither the legal nor the ethical right to attempt it, and surely he has not the scientific and medical knowledge requisite for its accomplishing. However poorly the medical man has executed his task, the optician will do it far more blunderingly. This *verbum sapienti* should be sufficient warning until, as with the druggist, we have also with the optician, passed laws to prevent him from attempting to fill the office of physician. There will then not be so many ruined eyes, and far less suffering from eyestrain.

Spectacle lenses have the power of changing the

shape and direction of the image-forming cone or bundle of rays of light entering the eye so that its faulty optical construction and powers are neutralized, and the image is at last accurately focused, and perfectly pictures the object. The outside lenses are in a way reversely unnatural, so that the inner eye-defect is met with an outer cancelling modification, whereby the direction of the parts of the rays making the image are so modified as to restore the picture about to be formed to normality. Plus is met by minus, minus by plus, astigmatic one-sidedness by its reverse. If the living eye were a dead mechanical one, if it were not subject to many diseases, if the results of eyestrain did not end in a multitude of diseases of the entire body and mind, then the optician might learn to prescribe glasses. But even for the highest medical intellect the work is a science and art demanding his best powers. Some one said that there are nine and forty distinct and separate ways of achieving damnation, while there is but one of salvation. There are twice that number of separate ways of failing to get right spectacles, and seventy-eight of them are set forth by an American oculist, reasons being given why, if any one is neglected, there will be no relief of eyestrain. Even if the physician's prescription is right, even if the lenses are properly ground and mounted, even if the spectacles are properly adjusted to the wearer's peculiarities of face, etc.—and these are all hazardous suppositions—there remains the wearer's

minor affections. Cataract, it is being recognized, is due to the morbid function of denutrition set up by the strain to neutralize errors of refraction, and may be prevented by wearing correcting spectacles long prior to the "cataract age." Almost all other inflammations of the eye, not excepting often the infectious ones, are usually due to the same morbid function. Function, as all good physiologists know, always precedes structure, and malfunction, as all good physicians know, also precedes the morbid and fatal organic pathology. Eyestrain is almost always the cause of eyes turning in, or out, that is, squint or strabismus, a trouble that is "innervational in nature and refractional in origin."

The next of the series of bad results of eyestrain are cerebral. The brain comes out to see, but owing to the enormous difficulty of the task, it sees poorly and with exhausting or irritating labor. As its every process and act are bound up with and the product of vision, visual disorders by reflex and passed-on malfunction induce cerebral affections, evidenced primarily by headache, migraine, etc. Although the medical textbooks give little or no hint of this, it is true, as thousands of good physicians and patients well know, that headaches, ninety percent at least, are due to eyestrain. Many observant physicians believe that the so-called "paroxysmal neuroses," periodic headaches, migraine, epilepsy, asthma, etc., as well as hysteria, neurasthenia, "brain-

fag," "nervous breakdown" are very frequently caused by years of morbid ocular struggle.

Mental diseases follow: weariness, alternating with hyperexcitability, an amazing need of walking, truancy (escaping from ocular labor), morbid introspection, nameless torments and self-tormenting, diseased habits, hopelessness, melancholia, manias, incipient and functional insanities, and, indirectly, occupational failure, crime, and many other errant trends.

The methods by which morbid ocular function induce various bodily diseases are so varied, differing almost in each individual, that it is impossible to set them forth in detail. Primarily it seems certain that the process is essentially one of waste and exhaustion of nervous force; all corporeal activities depend upon right seeing. All subordinate cerebral centers are drawn upon to restore the balance when clear and easy seeing drains too severely the optical store-houses and regulating mechanisms. But the peculiarity of nervous action is that often undersupply and even exhaustion ends in irritation and excessive nerve action. Hence we find hyperesthesia attending or consequent upon lowered vitalities and tensions. But at least and always come disordered functions and these naturally form two types or proceed by two routes. The first disorders, often the more distinctive cerebral incoordinations, are those classed as nutritional or digestional. Certainly one-half of all sufferers from eyestrain have dys-

pepsia of some kind. "Liver," "stomach," loss of digestive power, loss or fickleness of appetite, are the complaints that constantly occur in the biographies of great literary workers, and of the majority of our patients.

The second class comprises those in which blood supply and tension are morbidized—the so-called "vasomotor" cases. Skin affections, as was long ago found, are often due to "migraine," and migraine, we now know, is due to eyestrain. It is remarkable how often diseases of the kidneys have been produced by years of suffering from eyestrain. Secondly almost any affection, even surgical diseases, may supervene, caused by the lowered nutrition, disordered blood supply or the derouted nerve influences. The terminal diseases, as they are called, because they perform the final act of killing, are often but the executioners of long precedent eyestrain. Even the infectious diseases find their best soil—and soil is as important as seed—in the lowered vitality following years of headache, dyspepsia, etc. By careful count and trustworthy statistics 27 percent of school children have lateral spinal curvature. This astounding source of sickness and invalidism, directly or indirectly, is due to ocular defects, functions and laws.

And if the child is father to the man, let us add, and to the woman, what a havoc of the future generation we have been preparing by our neglect of the care of children's eyes! Take it only in the aspect of a saving of time. The results of Dr. Baker's examination of

the eyes of the Cleveland, Ohio, school children show that those with defective eyes are six or seven months older than the others of the same grade and that one in four have eyes that keep them behind in their studies. In the last few years the examination of the eyes and health of school children shows an appalling condition which fully bears out all that oculists have been warning against. The examiners in Quincy, Mass., state:

Many school children who appear dull and inattentive, who are nervous, irritable, morose, or disorderly, who suffer from headache, dizziness, nausea, or pains in the eyes, owe these ills largely or wholly to such defects. Generally neither they nor their parents nor their teachers are aware of the cause of their troubles. The examination of hundreds of thousands of school children has demonstrated that from twenty-five to thirty-five percent of them need the services of an oculist or of an aurist or of both; these handicaps can be removed and the children be able to receive the full benefits of instruction. In Utica, New York, an examination of over 6,000 pupils showed that about thirty-five percent were defective, and the report says: "Our tests revealed many sad and critical cases which were remediable because discovered at this stage of development. Many parents could not strongly enough express their gratitude to the teachers. Cases of what had been considered dulness or willful inattention on the part of the pupils were shown to have been due to inability to see or hear." In Chicago it was found that on entering school at the age of six years thirty-two percent of the pupils had defective eyes. In the schools thirty-seven percent of the girls and thirty-two percent of the boys, or an average of thirty-five percent, were defective and these tests were made by an expert.

In Minneapolis out of 25,696 pupils examined 8,166, or thirty-two percent, had defective eyesight. Similar conditions, differing only in degree, have been found wherever tests have been made.

In New York City Dr. Cronin finds that over 30 percent of the school children are suffering from the gross forms of defective eyesight. It must be remembered that the worst defects are not included in these statistics.

Lastly, the greatest of the misfortunes which may be traced to this cause are those connected with intellectual progress, the literary workers being those who suffer most. In direct and indirect ways the advances of civilization are most frequently conditioned upon use of the eyes in writing and reading. Certainly one-half or more of the great writers and thinkers of the world have had their lives turned into tragedies of personal affliction by this unsuspected cause. The biographies of Swift, Nietzsche, Parkman, George Eliot, the Carlyles, Whittier, Darwin, Wagner, Taine, Symonds, Heine, De Quincey, Huxley, Lewes, Margaret Fuller, Jules Verne, De Maupassant, Balzac, Berlioz and many others are filled with pathetic evidences of the truth. It is noteworthy that in the monumental "Life of Wagner," Dr. Ellis, who is at once physician, musician and biographer, after exhaustive research, confirms the theory that eyestrain was the chief cause of the poignant physical sufferings of that great genius. And what influences such afflictions

have on the character of the men and of their works only the discerning can surmise. The large majority of the men and women mentioned above have a striking likeness as regards a certain harshness, even bitterness, and a peculiar and pitiless insistence on logical distinctions; all but one or two were pessimistic and unreligious. Only art saved Wagner from an acerbity and skepticism, illustrated by his enemy-friend Nietzsche and his philosopher, Schopenhauer. It does not require a great mind to recognize the profound influence of disease upon character and philosophy.

BALZAC, THE HERO OF
“OVERWORK.”

CHAPTER III.

BALZAC, THE HERO OF "OVERWORK."*

Men talk of the victims of wars and epidemics, but who considers the battlefields of arts, science, and letters, and the dead and dying that fierce struggles for success pile upon them? *Balzac.*

SPEAKING as an expert craftsman, Henry James pronounces Balzac "the master of us all." "So far as we do move, we move round him; every road comes back to him." No other is comparable to him in the objectivation and vivification of his characters; they live by the inhering power of their own souls, which seem to have been given them by nature, not by the novelist. This creative instinct is the final seal of literary greatness, and by it one judges of its permanency. Balzac's characters, like those of Shakespere, have freedom, and their creator respects their liberty; "Balzac loves his Valerie," said Taine, and the truth is applicable to most of his characters. For quality and intensity, therefore, none approaches him. The wonder that a man could beget something like 2,000 such children of the spirit in less than 20 years is indeed a

* *Montreal Medical Journal*, November, 1905.

miracle which amazes those who have deepest studied Balzac's work. One is really dazed by the phenomenon when he overlooks the record of the amount of work done. His acknowledged writings begin in 1829, and end in 1849. In these 20 years his bibliography of separate and finished works gives the following number of titles:

1829	3	1839.....	11
1830	71	1840.....	11
1831	77	1841.....	10
1832	44	1842.....	9
1833	13	1843.....	9
1834	8	1844.....	7
1835	8	1845.....	4
1836	12	1846.....	4
1837	7	1847.....	2
1838	6	1848.....	3
Total.....			319
Posthumous works.....			6
Correspondence			2
Inedited			2
Titles announced but never published.....			95
			424

I have added the last item to direct attention to the inexhaustible imaginative ability, the creative spirit outrunning the possibilities of execution, even in one with almost miraculous powers. Nor should we forget that before he was 21 he had written a tragedy,

spending 15 months in a garret to perform the task, and thereby was "reduced in health and strength." Before 1829, he had written ten novels in 40 volumes, not one of which he ever allowed to appear under his name. In 1835, Balzac (always self-conscious and well aware of what he was doing, of its results to himself and the world) says of himself:

. think of those seventeen volumes manufactured by me without help; compute that that makes 300 *feuilles* (4,800 octavo pages), each read more than ten times, and that makes 48,000, besides the conception and the writing.

Some essayist has made a calculation that during his years of literary labor he wrote in average over 600 words a day. Compare that with the half a dozen or more lines a day of Darwin, Parkman, Carlyle, and others.

At least partially equalizing the difference in research and imaginative work must go the fact indicated in the foregoing excerpt: Balzac had a magnificent conscientiousness in the quality of his writings. It is literally true that he compelled the printers and publishers to furnish as many revises as ten, sometimes at his own expense, so that often not a line of the original remained in the published pages. When one considers that all this time Balzac was deluged with his enormous and disgusting financial worries, his literary conscience must be writ large on the credit side of his account-

book of heroism. In reply to an urgent publisher he wrote:

I am ready to send you a copy on the 15th, but it will be the most infamous murder of a book that was ever committed. There is in me a feeling, I don't know what it is, which prevents me from consciously doing wrong. The question here is the future of the book—am I to make it unworthy trash, or a work for the shelves of a library?

One is lost in wonder at the power of concentrated and persistent effort required to carry out the awful labor. For the greater part of these 20 years the man actually worked from 16 to 20 hours a day. A hundred quotations could be made in support of this; a few may suffice:

I work now 22 hours daily. (1834.)

Last week I took in all but 10 hours' sleep. (1834.)

Père Goriot was done in 40 days, during which I did not sleep 80 hours. But I must triumph. (1835.)

I am working 24 hours running. Then I sleep five hours, which gives me $21\frac{1}{2}$ hours to work a day. (1835.)

I don't know that brain, pen, and hand have ever done such a feat of triumph. (1835.)

For 25 days I have only slept a few hours. (1837.)

Such an abuse of the physiologic machine must finally produce disease; that it took Balzac 20 years to kill himself is only explainable by the fact that he had a physique of remarkably exceptional perfection.

In the famous statue Rodin has brought this out with the insight of genius.* Nature and heredity had seemingly conspired to produce an organism superbly fitted to withstand the peculiar kind of abuse to which Balzac forced it. The brain, the magnificent organ that never failed to answer command, that never succumbed to

* What then was this "Balzac" which was so much detested, and about which the most abusive and extraordinary things were written? Merely the image of the great writer, draped in a dressing-gown, with empty, hanging sleeves; he has risen in the night and is walking up and down, disturbed and sleepless, pursuing an idea that has suddenly presented itself. He is bent forward, his head thrown back, the eyes deep-set, and the mouth contracted in a smile of challenge. The powerful neck—the neck indeed of a bull—emerges from the open wrapper. Rodin made use of various daguerreotypes, and especially of a celebrated portrait of Balzac, that shows him in shirt-sleeves, with one brace, and folded arms. The enormous proportions of the head, the amazing strength of the thorax, the monstrous and leonine character of the face are all exact. "His was the countenance of an element," said Lamartine of Balzac, "with a torso that was joined at the head of an enormous neck, short legs and short arms." These words absolutely justify the statue. Rodin has made studies for it in the nude (there are some fine clay models of the subject in his study), then clothed it with a gown (or, to be more exact, with a bath-wrap, for that is what Balzac's famous monk's robe was), and proceeded to simplify the folds until he had left only the two or three essential ones. The result thus obtained with the disproportion of body and legs, led Rodin to hide the short, ugly, useless arms under the drapery, and the figure thus assumed pretty much the appearance of a mummy, of a sort of monolith, from which nothing stood out but the one point of interest, the savage and magnifying animality of the head, with its darkened gaze and the bitterly curved mouth. (M. Maclair. From *Current Literature*, August, 1905.)

disease no matter what was commanded, was fed through a short and massive neck * by the heart and lungs of the "amazing thorax." Had there been any sort of pity of the organism by its tyrant, the digestive and eliminative organs below might have permitted Balzac to work 25 or 30 years longer, as did those of Goethe, Humboldt, Gladstone, and others. Alas! There was the most absolute lack of pity, and at the last, despite his magnificent powers of regeneration, the eyes and kidneys had to cry out, "We cannot longer: you have demanded the impossible."

The history of the incapacities and rebellion of Balzac's body began with the beginnings of his reckless demands upon it. One of his biographers thus writes:

" 'When I was quite a young man,' Balzac writes, 'I had an illness from which persons do not recover; nineteen out of twenty die.' Dr. Nacquart said, 'If he gets well now he may live a hundred years.' . . . He frequently alludes to the fact that Dr. Nacquart saved his life. This illness, doubtless the heart disease which he mentions to George Sand in 1831, and to which his sister alludes as the result of a great mental shock, must have occurred during the first of these years of which there is no record."

This pompous nonsense however has its explication,

* My brother used to say, laughingly, in allusion to his want of height, that "great men were nearly always short; probably because the head should be near the heart, so that the two powers which govern the organization should work in harmony." (Honoré de Balzac, page 255.)

and a natural one:—At the Vendome College, where he had been sent at seven years of age, he had not had a single holiday for seven entire years. At the end of this pedagogical barbarism "he was attacked with a sort of coma"; as he was accounted an idle boy his superiors could not understand it, and like the physicians of all later times, they rushed to "pathology" and "heredity" for reasons. It was a peculiar "affection of the brain". Honoré was thin and puny, he was in a state of semisomnambulism, scarcely hearing, unable to reply to questions. In later years Balzac explained this and similar states as due to "a sort of congestion of ideas"—at least he did not fly to the theory of "disease of the cerebrum", "organic, or inherited". The rationale of its origin is plain when it finally comes out that the "idle" boy of 14 had composed "treatises on the will", and, unknown to the professors, had read "the greater part of the rich library of the College which had been formed by the learned Oratorian founders and proprietors of this vast institution"! Returned to his home by the perspicuous educators, the grandmother wisely remarked: "See how a college returns to us the blooming children we trust to it"! Health, love of life, and activity, soon returned to the boy at home.

From this time we have little trustworthy or suggestive history until at the age of 34 the human machine begins to cry out against the outrages thrust upon it.

The real nature of the hurts can be only guessed at in the following quotations from Balzac's letters:

Yesterday I had an inflammation of the brain, in consequence of my too hard work; but, by the merest chance, I was with my mother, who had a phial of *balm tranquil*, and bathed my head with it. I suffered horribly for nine or ten hours. I am better today. The doctor wants me to travel for two months. (1834.)

My cold is precisely the same. (1835.)

I am a prey to the horrible spasmodic cough I had at Geneva, and which, since then, returns every year at the same time. Dr. Nacquart declares that I ought to pay attention to it, and that I got something which he does not define, in crossing the Jura. The good doctor is going to study my lungs. This year I suffer more than usual. (1836.)

. speaking literally, I *am* killing myself. Physical strength is beginning to fail me. (1836.)

My forces are being exhausted in this struggle; it is lasting too long; it is wearing me out. (1836.)

. A nervous sanguineous attack. I was at death's door for a whole day. (1836.)

All the mucous membranes are violently inflamed; I cannot digest without horrible suffering. (1836.)

I entered the garret where I am with the conviction that I should die exhausted with my work. I thought that I should bear it better than I do. It is now a month that I have risen at midnight and gone to bed at six; I have compelled myself to the least amount of food that will keep us alive, so as not to drive the fatigue of digestion to the brain. Well, not only do I feel weaknesses that I cannot describe, but so much life communicated to the brain has brought strange troubles. Sometimes I lose the sense of verticality, which is in the cerebellum. Even in bed my head seems to fall to right or left, and when I rise I am

impelled by an enormous weight that is in my head. I understand how Pascal's absolute continuance and his immense labor led him to see an abyss around him, so that he could not do without two chairs, one on each side of him. (1836.)

I have been ill the whole time. Finally I had what I seemed to have been in search of, an inflammation of the bowels, which is quieted today. I still suffer, but that is a small matter. I have had constant suffering, and I greatly feared an inflammation for my poor brain after so painful a year, painful in so many ways, hard in toil, and cruel in emotions, full of distresses. There was nothing surprising in such an illness. However, though I can, as yet, digest only milk, all is well and I resume my work. (1837.)

Nearly the whole of my month of January was taken up by an attack of very intense cholera, which deprived me of all energy and all faculties. Then, after getting over that semiridiculous illness, I was seized by the grippe, which kept me ten days in bed. (1837.)

This illness has made me lose six irreparable weeks. (1837.)

I ended by getting an inflammation of the lungs, and I came to Touraine by order of the doctor, who advised me not to work, but to amuse myself, and walk about. To amuse myself is impossible. Nothing but travel can counterbalance my work. As for working, that is impossible; even the writing of these few lines has given me an intolerable pain in the back between the shoulders; and, as for walking, that is still more impossible; for I cough so agedly that I fear to check the perspiration it causes by passing from warm to cool spots and breezy openings. I thought Touraine would do me good. But my illness has increased. The whole left lung is involved, and I return to Paris to submit to a fresh examination. But as I must, no matter what state I am in, resume my work and leave a mild and milky regimen for that of stimulants, I feel that toil will carry me off. (1837.)

I hasten to tell you that the inflammation, which turned into bronchitis, is now cured. (1837.)

I am a little better, that is all. I have been ill of a malady that love abhors, caused by the quality of the drinking water, which contained calcareous deposits. Hence, complete dissolution of my brain forces. (1838.)

I left my bed today for the first time in ten days. My illness, which is nearly over, was an attack of cerebral neuralgia, caused by a draught in a railway-carriage, which, combined with the mental condition in which I was, gave me a horrible fever, which I had, and the atrocious sufferings of neuralgia. (1840.)

It is now twenty days that I have suffered much with a species of cholericine, or inflammation of the bowels, ... (1840.)

I am very lonely when my brain ceases to work, or lies down to rest. There is something humiliating in the thought that a trifling inflammation of insignificant viscera prevents the exercise of our highest powers. (1840.)

I have had a species of congestion of the head. (1841.)

If the colic, as Lord Byron says, puts love to flight it certainly knocks down imagination; not only have I suffered, but my brain has been as if veiled. Last night was dreadful, and waking not pleasant. (1844.)

When I do not suffer in my head I suffer in the intestines, and I have at all times a little fever; nevertheless, this morning, at the moment of writing to you, I am well, or, rather, I feel better. (1844.)

I have a severe lumbago and fever; I feel all kneaded and broken. I went beyond my strength. (1845.)

I should have been dressed differently and so escaped my cold. (1846.)

Till now, I have not felt the baneful affects of the Asiatic climate. It is fearful. I have headaches all the time. Heat and cold are both excessive. Asia sends us winds charged with

elements quite other than those of European atmospheres. (1849.)

I took cold at Kiev, which has made me suffer long and cruelly. The treatment I have been undergoing for my heart and lung trouble is uninterrupted, for I had no strength for it. I have reached the stage of absolute muscular weakness in those two organs, which causes suffocation for no cause at all—a slight noise, a word spoken loudly. However, this last cold is getting better, and they are going to try and remedy the muscular exhaustion—otherwise, the journey home would be very difficult. I have had to get a valet—being unable to lift a package, or make any movement at all violent. (1849.)

I have had what the doctor calls an intermittent cephalalgic fever. It was horrible. It lasted thirty-four days. I am as thin as I was in 1819; . . . (1849.)

I took the most dreadful cold I have had in my life. (1850.)

"Simple hypertrophy." (1850.)

Profound albuminuria. (1850.)

The principal definite illness or symptoms thus indicated are therefore seen to be:

1. "Inflammation of the brain."*
2. "Horrible spasmodic cough."
3. Failing physical strength; lassitude; exhaustion.
4. "Nervous sanguineous attack."
5. Loss of sense of verticality (dizziness); the head heavy, etc.
6. "Inflammation of the bowels."

* In almost every biography or series of letters one will find suggestive allusions to the sufferings of others. In 1844 Balzac wrote:

Frederick Lemaitre was in fear of a cerebral congestion; I found him yesterday at midday in bed; he had just plunged into a mustard bath up to his knees. Twice the night before he lost his eyesight.

7. "Inflammation of the lungs," "the left lung involved," turning out to be "bronchitis."
8. "Inflammation of the blood."
9. "Coagulation of the blood."
10. "Cerebral neuralgia," "horrible fever," "atrocious neuralgia."
11. "Intense cholerae."
12. Severe suffering of head alternating with that of intestines.
13. "Colds," and again, and still again "colds."
14. "Severe lumbago and fever."
15. Muscular exhaustion.
16. Heat.
17. "Intermittent cephalalgic fever."
18. "Simple (cardiac) hypertrophy." "Heart disease."
19. Albuminuria. ("Profound albuminuria.")

With the last symptom we have the indication of the organic disease, nephritis, that caused the death. The modern physician sees in the others only functional affections—the symptoms of a constantly acting cause of reflex mischief, attacking successively and unsuccessfully one set of organs after another which were able to rid themselves of the "insult" (speaking at once physically, medically, and morally) until, at last, one was found which was compelled to succumb. The graft of Tourainian devil-may-care upon French extremism exaggerated Balzac's neglect of his health so that when his exhausted eyes and brain and jaded vital powers compelled him to sit and stare at his paper in blank apathy and asthenia, he was still obedient to the cease-

less inner cry which relentlessly commanded him to "go on."

The excerpts hitherto made do not show that there was another suffering organ which bore the insult at first with wonderful success, but which, being the most abused of all, was finally forced to renounce. This is illustrated in these citations.

Every evening an inflammation of the eyes warns me that I have gone beyond my strength. (1836.)

I risked an ophthalmia on Mt. Cenis. (1838.)

I am beginning to have trouble with my eyes, and that grieves me; I shall have to cease working at night. (1839.)

His head was apt to lean to one side. *Biography*.

. . . . work fatigues me, the symptoms that happiness and the journeys of this year drove away are returning. My eyes throb, the temples also, and I feel weary. I have had to buy a candelabrum for five candles; three were no longer enough, my eyes pained me. (1845.)

A letter for me, you see, is not only money, but an hour of sleep and a drop of blood. (*Letter to his Mother*.)

I can hardly see to read and write. I have some trouble in my eyes which prevents either reading or writing. It comes from a draught of air, and the present medical treatment. The doctor is not alarmed. . . . Oh, my poor eyes—once so good! (1850.)

I can no longer read or write.* (1850.)

His eyes, once clear and far-sighted, were covered with a film or veil. (Dr. Nacquart, in 1850.)

*I have kept that sorrowful line—the last, probably, that the author of the *Comédie Humaine* ever wrote. It was, although I did not comprehend it at the time, the supreme cry of the thinker and the worker: "*It is finished!*" (Balzac's sister.)

In the treatises and case-histories, "migraine" is noteworthy as presenting rapid changes in the symptoms, quick transfers of the morbid reflex from one set of organs to another. This has been the rule in the biographic clinics of the 16 patients I have previously reported. It is especially so with Balzac who was so happily constituted that all parts of his system were equally strong and resistant to the derouted reflex. The citations I have made illustrate this. Similarly the fact is evident of the sudden and seemingly inexplicable alterations of abject wretchedness and suffering with perfect health, strength, and spirits. For centuries this has been a wellknown characteristic of "migraine." Balzac's case also shows it, and it also illustrates the other old-fashioned fact that the manifold diseases or symptoms depend absolutely upon the amount of ocular labor done and the immediate relief, the reestablished health, in all the early stages of the disease and (except where the outrage has been insane) from ocular rest, disguised under the name of travel and recreation.*

*An occasional exception occurs when students and writers take their books with them, and keep up the ocular labor only a little less strenuously than when at home.

How, despite his intense occupation with his literary work, Balzac was compelled to travel, is illustrated by the journeys he took. In 1831 he was at Nemours; in 1833 at Nemours, Augoulême, Lyons, Switzerland, and again at Augoulême, Neuchatel; in 1834 in Switzerland; in 1835 at Vienna; in 1838 in Sardinia; in 1837 through Italy and Austria, etc.

I was worn out with the labor of writing *Louis Lambert*; I had sat up many nights and so abused the use of coffee that I suffered pains in my stomach which amounted to cramp. (1834.)

After the "Absolu," Dr. Nacquart thought me so debilitated that, not wishing (as he said in his flattering way) that I should die on the last step of the ladder, he ordered me my native air, and told me to write nothing, read nothing, do nothing, and think nothing—if I could, he said, laughing. (1834.)

I will write a little more regularly in future. The doctors have obtained that I should change my way of life. (1834.)

Last week I took in all but ten hours' sleep. So that yesterday and today I have been like a poor foundered horse on his side—in my bed, not able to do anything, or hear anything. (1834.)

I began to work eighteen hours a day. I stood it for fifteen days from the last letter till December 31; then I risked an insomnia; and I am now waking from sleep of seventeen hours, taken at intervals, which has saved me. (1835.)

. horrible pain which rent me during the ten days I rested after "Père Goriot." (1835.)

The finishing of "Seraphita" kills me, crushes me. I have fever every day. (1835.)

Yes, I am altogether better. I have recovered from the fatigues of the journey. (1835.)

Since I wrote you I have been very ill. All these distresses, discussions, toils, and fatigues, produced, at Saché, a nervous sanguineous attack. I was at death's door for one whole day. But much sleep and the woods of Saché put me right in three days. (1836.)

I am ordered to go to Touraine for a month to recover life, and health. (1836.)

I must submit to physicians, humbly, or I shall quickly be destroyed. (1836.)

Touraine has given me back some health. (1836.)

None but myself know the good Switzerland does. (1837.)

The moment the publication of the last part of the "*Etudes de Moeurs*" was over, my strength suddenly collapsed. I had to distract my mind; and I foresee it will be so every fourth or fifth month. My health is detestable, disquieting; but I tell this only to you. My mind feels the effect of it. (1837.)

Those two months, so precious, I have just spent you will tell me, in travel. Yes, but I started only because I was without ideas, without strength, my brain exhausted, my soul dejected, worn-out with my last struggles, which, believe me, were dreadful, horrible! (1837.)

Here I am, back in Paris. My health is perfect, and my brain so much refreshed that it seems as though I had never written anything. (1837.)

This journey, in refreshing my brain, rejuvenated me, and gave me back my force. (1837.)

I travel when it is impossible to rouse my broken-down brain. When I return, I shut myself up and work night and day until death comes—of the brain, be it understood, though a man may die of work. (1837.)

. if there is success, success will come too late. I feel myself decidedly ill. I should have done better to go and pass six months at Wierzohovnia than to stay on the battlefield where I shall end being knocked over. (1837.)

. I sit down, palpitating, and saddened for days. Such fevers, such starts, shaken by inward convulsions, break me, crush me. (1838.)

. I am perfectly well without aches or pains, in my young house. (1838.)

My situation is more painful than it has ever been. Doctor Nacquart preaches vehemently a journey of six weeks. (1840.)

I fell ill. I had to travel. (1844.)

. spent the rest of the month in taking baths of three

hours to quell the inflammation that threatened me and in following a debilitating regimen. No more work, not the slightest strength, and I continued till the beginning of the present month in the agreeable condition of an oyster. At last, Dr. Nacquart being satisfied, I began to write again . . . (1841.)

I am well in spite of a slight grippe. (1844.)

Yesterday I consulted M. Roux (Dupuytren's successor, alas!), and he strongly advised me that a journey on foot was the only means of arresting the inclination of cerebral organs to inflame. (1844.)

I had yesterday, after writing to you, a violent rush of blood to the head. From three in the morning till three in the afternoon I corrected without pausing the folios of *La Comédie Humaine* (1844.)

This work, which was equivalent to writing in twelve hours an 8vo. volume, brought on the attack. My nose bled from yesterday until this morning. But I feel myself more relieved than weakened by this little natural bleeding—beneficial, I make no doubt. (1844.)

All is well; the neuralgia pains have disappeared as if by magic. (1844.)

This interruption, dear, is the result of the doctor's prescriptions. I have not left my bed; leeches were necessary and blisters for three or four days; but this morning the symptoms and the atrocious pain of this inflammation have ceased. In three days, at the latest, I can resume my work. (1844.)

I am perfectly well again and have gone back to work. (1844.)

I have recovered my faculties, more brilliant than ever. (1845.)

My ability to work only lasted two days. I am seized by spleen. (1845.)

My health is excellent, and my talent—oh! I have recovered it in all its bloom. (1846.)

I am very much better; the doctor was a prophet; in two days

all was over and restored in good order; I am still dieting, but tomorrow I can resume my usual food and my work. (1846.)

I am now only a man without strength, food, or appetite. But the intestines are all right again I believe, and next week I shall finish with the "Constitutionnel." (1846.)

I feel young, full of energy and of talent before new difficulties. (1846.)

. Dr. Nacquart scolded me well when he found me at my table writing, after all he had said to me about it. Neither he nor any of his friends, the doctors, can conceive how a man should subject his brain to such excesses. He said to me and repeated his words with a threatening air, that harm would come of it. He entreated me to at least put some interval of time between "the debauches of the brain," as he called them. The efforts on "Cousine Bette," improvised in a week, especially alarmed him. He said, "This will necessarily end in something fatal."

The fact is, I feel myself in some degree affected; sometimes in conversation I search, and often very painfully, for nouns. My memory for names fails me. It is true that I ought to rest. (1846.)

Readers of the clinical biographies of Carlyle, Wagner, and others, have been struck by the fact that prolonged literary labor, when eyestrain exists, is peculiarly prone to produce, sometimes exaltation, more commonly profound depression, "nameless suffering," "indescribable torture," not seldom deep gloom, melancholy, and despair. At times and in some cases there is simply an astonishing inhibition of cerebral activity, resulting in inability to make the mind work, however spurred,

and the patient sits before his task in complete empty mindedness. All phases, as one would expect, are illustrated in Balzac:

I have the weakness and the species of physical melancholy that comes from abuse of toil. (1834.)

. finding myself so changed by toil, there come moments of lassitude, efforts, tension, headaches, weariness, all go on (1835.)

I have now been at home eight days, and for eight days I have been making vain efforts to resume my work. My head refuses to give myself to any intellectual labor; I feel it to be full of ideas, but nothing comes out. I am incapable of fixing my thought; of compelling it to consider a subject under all aspects and deciding the march. I don't know when this imbecility will cease. (1837.)

After writing this letter I must take a bath, not without terror, for I am afraid of relaxing the fibres which are strung up to the highest tension. (1837.)

I don't know anything more wearying than to sit a whole night, from midnight till eight o'clock, beneath the light of shaded candles, before blank paper, unable to find thoughts (1837.)

I am now at a moment of extreme depression. Coffee does nothing for me; it does not bring to the surface the inner man, who stays in his prison of flesh and bones. (1837.)

I do not believe in what they call my talent. I spend nights in despairing. (1837.)

I am not well in body or in mind. I feel a horrible lassitude, which, in regard to my head, is not without danger. I have no longer force or courage. (1838.)

I am frightened at a species of interior old age which has come upon me. (1840.)

You will never know until I explain it to you verbally, the courage I display in writing to you. This morning I stayed till eleven o'clock in bed, unable to get up. It is horrible suffering which has its seat nowhere; which cannot be described—which attacks both heart and brain. I feel stupid, and the further I go, the worse the malady becomes. (1843.)

I don't know whether it is a phase of the brain, but I have no continuity of will. I plot, I conceive books, but when it comes to execution, all escapes me. (1844.)

. my ability to work only lasted two days. I am again seized by spleen, complicated with nostalgia, or, if you like, by an ennui I never felt before. Yes, this is *true ennui*; nothing amuses me, nothing distracts me, nothing enlivens me; it is a death of the soul, a death of the will, the collapse of the whole being. (1845.)

. in spite of this heat my health gets better and better; nourishment no longer distresses me; and the intestines are coming back to a normal state. The doctor says my illness came only from heat, which is to me what it is to you. One must cling to doing one's duty, as I do, in order to work under this physical dissolution. (1846.)

In passing it may be advisable to notice that with one or two exceptions—that of overwork, and carelessness as to food, Balzac's illnesses were not due to unhygienic or immoral life. He was probably as chaste as any Frenchman that ever lived. His heroic self-sacrifice in work, for that, left him little or no time, even for a minimum of social life. He never smoked, and he drank little or no alcoholic liquors. His chief hygienic sins were carelessness about food, and reliance

upon coffee to supply its place, and of course his lack of exercise, coupled with inordinately continuous literary labor, and consequent loss of sleep.

My sobriety and regularity of life can alone save me under the ardent work I have to complete to win that liberty so longed for. It is now twenty days that I have risen at midnight and gone to bed at six o'clock. (1835.)

If (in spite of a regimen prescribed by doctors who have traced me a manner of living so that I may struggle without danger through my work), *if* I fall ill. (1835.)

My health is extremely bad. Coffee no longer produces me mental force. (1836.)

The time during which the inspiration of coffee lasts is lessening. It now excites my brain for only fifteen days consecutively—fatal excitement, too, for it gives me horrible pains in the stomach. (1836.)

She only divined that I had eaten nothing for days. (1837.)

. for twenty-five days I have only slept a few hours; that I have been within an ace of apoplexy; that I shall never again undertake such a feat of strength. (1837.)

As I had been twenty-five days without sleep, I have now been a month employed in sleeping sixteen hours a day and in doing nothing the other eight. I am renewing my brain to spend it again immediately. (1838.)

Yes, there have been days when I proudly ate a roll of bread on the boulevard. (1840.)

That Balzac had not insomnia, the common symptom of "an overtaxed brain," of "migraine," etc., is evidence of the marvelous perfection and resistance of his cerebral and nervous system. Probably no one ever forced

himself so habitually to go without sleep. The quotations given illustrate this. Even in 1842 he speaks of allowing himself only two hours of sleep a night. In 1846 he writes of a continual fever of inspiration and insomnia, by which word he evidently means previgilium or enforced wakefulness. In 1838 he says he went 25 days without sleep (undoubtedly an exaggerated statement), but adds that for a month he had been sleeping 16 hours a day.

The problem of the medical profession of that day before such a patient is illustrated by the following quotations:

Dr. Nacquart put me into a bath for three hours a day, on ten pounds of grapes, and wanted me not to work; but I do work all night. (1835.)

My health is at this moment so greatly affected that Dr. Nacquart issues an edict which has to be obeyed. Coffee is suppressed. Every evening they put upon my stomach a linseed poultice. I am kept on chicken broth, and eat nothing but white meat. I drink gum water, and they give me inward sedatives. I have to follow this regimen for ten days and then go to Touraine for a month, to recover life and health. All the mucous membranes are violently inflamed; I cannot digest without horrible suffering. (1836.)

I fell ill. I had to travel. As soon as the result was obtained I was seized with an inflammation of the blood which threatened to attack the brain. I went to Touraine for two weeks; but on my return Dr. Nacquart condemned me to a bath of three hours a day, to drink four pints of water, and to take no food, inasmuch as my blood was coagulating. I am just out of this barbarous

but heroic treatment, with complexion clear, refreshed, and ready for new struggles. (1841.)

I am not very well; yesterday I went to the doctor; the neuralgia must be fought with leeches and a little blister; that will take three or four days. I have been doing "César Birotteau" with my feet in mustard, and I am now writing "Les Paysans" with my head in opium. (1844.)

Nacquart said to me brutally yesterday, while writing his prescription, "You will die." "No," I said, "I have a private God of my own: a God stronger than all diseases." (1844.)

I am still here, detained by illness. Alas! I have paid tribute to 1848. I have come to such a pass that I can no longer brush my hair without suffocation and palpitation. Twice I nearly strangled from the impossibility of inhaling and exhaling my breath. I cannot go up stairs Happily there is a doctor here, a pupil of the famous Franck (the original of my *Médecin de Campagne*). He and his son say the trouble is a *simple hypertrophy* and answer for my complete cure. (1849.)

The trouble in my heart (not to speak of those in my stomach which are a consequence of it) has increased to such a degree that the treatment is renewed. I have been auscultated, and the disease named (so as not to alarm me) *simple hypertrophy*. It appears that the father undertook the cure against the advice of the son, who, imbued with our French ideas, thought it was all over with me. . . . (Here follow many details of his illness and treatment.) However, the doctor is confident he can complete the work and make me as good as new. He is a great physician, quite unknown. He does justice to the French faculty; says they are the first in the world for recognizing and diagnosing diseases; but declares them absolutely ignorant, with a few exceptions, of therapeutics—that is, the knowledge of the means of cure. Is it not dreadful to think that Frédéric Soulé died for want of this doctor of mine?—for two months

ago I was as ill as Soulé was when he put himself under treatment. (1849.)

I have had to go back to the treatment for heart disease. My doctor is a great physician, buried at Wierzschovnia, who, like many another genius, dislikes the art in which he excels. . . . He has invented *powders*. . . . He keeps the composition of his powders so great a secret that he will not even reveal it to his son. He has radically cured persons much worse than I. (1849.)

The doctor is not alarmed. He wants me to continue the treatment six days longer. I have had a serious relapse in my heart trouble and also in the lung. I have lost more ground than I had gained. Every motion that I make stops both speech and breathing. (1850.)

It is plain to all who read this history now that Balzac was in the grasp of a mortal malady as early as 1847, before he went to that cruel Russian climate, which gave him his *coup-de-grâce*. After he was taken ill at Wierzschovnia, he trusted, with his natural confidence, to a local doctor, who tortured him with remedies to no purpose, against the advice of his own son, a physician of broader intelligence. Dr. Nacquart, his life-long friend and physician, being asked to give the causes of Balzac's death, wrote a long and rather irrelevant statement, in which, however, the following significant facts appear: "A longstanding disease of the heart, aggravated by overwork at night, and the use, or abuse, of coffee had taken a new and fatal development. . . . His breathing was short and panting, and forbade all active motion; his voice, formerly so strong, was weak and broken; his eyes, once clear and far-sighted, were covered with a film or veil. The patient retained hopes of himself; but science had in the first instance diagnosed the complication of a marked albuminuria (*profound albuminuria*), and could see no prospect of recovery." (Balzac's sister).

For several hundred years pseudotherapeutics such as are shown in the last excerpts have been handed down from one medical generation to another. Were it not that these patients are treated in exactly the same way today there could be no word of regret, pity, or criticism of the elders; they could not know the light that has been thrown on the etiology of the motley and somewhat ludicrous crowd of patients now labeled "hysterics," "neurasthenics," "degenerates," and all the other dozen or two names invented to disguise ignorance. Nacquart, of course, had a patient who would break rules, but it was chiefly because Nacquart had no reason for his rules, and, if Balzac would have worked less extremely, he might as well have doctored himself. A most trustful and "good" patient Balzac assuredly was. Even when he fell into the hands of the quackish Russian physician his confidence in the trickster remains perfect.* The score or more of "diagnoses" made of Balzac's troubles, all except one, resolve themselves into blunders as to facts, ignorances as to the cause of the facts, lucky or unlucky empiricisms as to the cures. Nacquart held pretty firmly (as we all do when we can't cure), to the advice to stop working and travel. Why writing and reading pro-

* His faith indeed was somewhat noteworthy, as is illustrated in his implicit confidence in somnambulists, "magnetizers," etc., whom he constantly consulted. He is even proud of his own "magnetizing" powers.

duced the symptoms and sufferings so evidently consequential, was beyond explanation except by the words used today in such cases—"brain-fag", "cerebral exhaustion", "overwork", and the rest. Nacquart was excusable. A thousand present-day neurologists and diagnosticians, "leaders" of the profession, so-called, are not excusable. The sole lesson that seems to come out of their dogmatism and unprogressiveness is that they would prefer their patients should not be cured rather than to have them cured by means of ocular treatment.

The only scrap of what might be called direct evidence to be found that Balzac suffered from eyestrain is in the incidental remark of his sister that his eyes had been far-sighted. This, however, means only that he did not have myopia, nor so much astigmatism as to prevent distant vision. But in this case the direct evidence is not needed, because the indirect is so clear and so cumulative. His symptoms, and especially their life-history, are precisely those of most who consult the modern expert oculist. The usual immediate and permanent disappearance of such symptoms in those under 45 years of age, by means of scientific refraction-work, is demonstrated every day in the oculist's office. Without that is any modern physician able to cure such patients? Never, except by ordering, as of old, that the patient shall stop all writing and reading. The silencing demonstration that Balzac's

brain was not "inflamed", "exhausted" or otherwise diseased, is the fact that the works produced in his last years, just before his marriage, free from financial worries, happy and hopeful, show all the invention, power, objectivation—all the perfections of technic, in a word, of those of ten or fifteen years previously. What, then, had failed? Simply ability to see, "at close range", that is, in writing and reading, so continuously as before. The long-standing and single cause of mischief, the reflex which had attacked one set of organs after another, was, simply, "eyestrain". If Balzac had not been "far-sighted", but had, say, one diopter of simple myopia alike in each eye, even his unhygienic habits could not have broken him at 47 and killed him at 50. The simple physiologic reason for this is that in all the human body there is no muscle that can be long and continuously innervated. That is a task Nature has been unable to carry out, and a hundred anatomic mechanisms illustrate this truth of physiology. Even if Balzac had been without ametropia he would still have had enormous eyestrain, because the ciliary muscle, although acting in a way that might be called "normal", was put to impossible tasks. Accommodation would always be subnormal under such conditions. The ciliary muscle of the eye, that of "accommodation", in the "far-sighted", is required by such work as Balzac did to be daily in a constant state of contraction for hours, and even for

twenty of them. The attempt at this physiologic impossibility produces the morbid results we know and which are so capitally illustrated in Balzac's case. But, of course, no pair of human eyes has ever been tested in which absolute "emmetropia" existed, and the least ametropia would vastly increase eyestrain in such a case as that of Balzac. Indeed, local ocular disease preceded other lethal organic diseases, and comparative blindness (not cataractous, or albuminuric) preceded death. All oculists know that between the ages of 40 and 50 eyestrain is necessarily doubled by what is technically called presbyopia. All biographers deplore and wonder at Balzac's death at 50. Seven years before his own death, however, occurred that of another which removed the chief obstacle to his marriage with the woman he had so long, so purely, and so fervently loved. To this was added such an improvement in his finances that it was possible to lessen the exorbitant demands upon his eyes and mind. Despite these things, despite comparative wealth, despite love and travel and happiness, that his health grew steadily worse, and that he died immediately after his marriage—these things cannot be explained except upon the theory of eyestrain, which had long lessened his resisting power, and which when reinforced by presbyopia, finally produced the nephritis which killed him.

TCHAIKOVSKY.

CHAPTER IV.

TCHAIKOVSKY.*

"NERVOUS tension", "nervous irritability", "depression", "illness", and such terms, are constantly met in the biography and letters of Tchaikovsky. That these symptoms began to appear early in his life, and were always connected with study, school-life, or literary work may be seen by the following quotations:†

This nervous tension began to be apparent, not only in his pallor and emaciation, but in frequent ailments that kept him from school. There was also a moral reaction, and the boy became capricious, irritable, and unlike his former self. (Biog. 3.)

Peter's nervous irritability was much increased by the illness, and the doctors believed he was suffering from some spinal trouble. All work was forbidden, and the invalid rested for six months. After a time, quiet and freedom from lessons improved the boy's physical health, but his moral character did not entirely regain its former cheerful serenity. The wound was healed, but the scar remained. (Biog. 9.)

The change from St. Petersburg, while it proved beneficial to Peter's health, did not cure his indolence, capriciousness and irritability. (Biog. 10.)

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† The numbers following the quotations indicate the patient's age.

His parents did nothing, however, to further his musical education, partly because they were afraid of a return of his nervous disorder. (Biog. 10.)

When one seeks the data for a biographic clinic upon a patient, it seems at first glance that there is such a dearth and inexactness in the hints given that the results must be too vague and unscientific to yield an undoubted diagnosis. The untruth of the criticism, however, is turned to surprise when it is found that in a score of such cases the patients suffer in the same ways; that although unknown to each other, they express themselves in almost the same terms; that their physicians could not guess what ailed them, nor how to cure them; that the disease kept on despite all the "cures", drugs, dietaries, journeyings and spas, ordered by the physicians; and that unconsciously the sole relief (never permanent cure) was by one common procedure. We feel sorry that Tchaikovsky destroyed those diaries which would have made conviction more certain, and yet, putting the composite photographs of the score of cases on the same plate, they cover and reinforce the lineaments and expressions as if but one sitter were present. Then when the reader is a modern physician, who has seen a thousand identical cases in his daily practice, and has cured them, there remains no scintilla of doubt as to what was the essential cause and nature of the single disease with which the dead patients were tormented.

The cause that produced Tchaikovsky's "nervousness", "irritability", "tension", "illness", "spinal trouble", etc., when he was eight, nine and ten years of age, and forced him to stop study, and his musical education, grows more and more evident to the reader in the history of the following years. When he was twenty-six, he had "a terrible nervous breakdown" (the term is as common and as senseless now as it was fifty years ago), he "narrowly escaped madness"—all caused by composition at night.

By 1875 the chronic malady had made considerable progress. It did not return at intervals as heretofore, but had become a constant trouble. According to his own account, he was depressed all the winter, sometimes to the verge of despair. He felt he had reached a turning-point in his existence, similar to that in the sixties. (Biog. 35.)

Tchaikovsky's health broke down. According to a telegram which he sent to Petersburg, he left Moscow suddenly on September 24 (October 6), in a condition bordering upon insanity. (Biog. 37.)

The mental and moral disorder which attacked Tchaikovsky during the course of this season, and gradually took firmer hold upon him, until in 1877 it reached a terrible crisis which nearly proved fatal to his existence. (Biog. 37.)

Anatol says that his brother was scarcely recognizable when he met him on the platform of the Nicholas Station in Petersburg; his face had entirely changed in the course of a month. From the station he was taken to the nearest hotel, where, after a violent nervous crisis, he became unconscious, in which state he remained for forty-eight hours. When this crisis was over, the doctors

ordered a complete change of life and scene as the sole chance of recovery. (37.)

I am still quite a sick man. I cannot bear the least noise as yet. Yesterday in Florence, and today in Rome, every vehicle that rolled by threw me into an insane rage; every sound, every cry exasperated my nerves. (Biog. 37.)

The dangerous crisis in his illness was over and a slow convalescence began. (Biog. 37.)

I am ill, mentally and physically; just now I could not live in any situation in which I had to be busy, agitated, and conspicuously before the world. (38.)

There were moments when I experienced such a complete loss of strength that I feared for my life. (49.)

From the 1st to the 19th of November I endured martyrdom, and I am still marvelling how I lived through it all. (49.)

"Curious fact," (he remarks in his diary) "I seek solitude, and suffer when I have found it." In this state of fluctuation between *bad* and *worse* Tchaikovsky had spent his time since he left Russia. (Biog. 49.)

Every careful oculist has found that his patients report that their headaches, nervousness, irritability, dyspepsia, catarrh of the stomach, "migraine", sick-headache, insomnia, depression of spirits, etc., depend upon the use of their eyes in reading, writing, sewing, and other kinds of "near-work". In every one of the twenty cases studied in the *Biographic Clinics* I have reported, the same cause of suffering has been overwhelmingly evident. In that of Tchaikovsky the proofs are abundant. For instance:

He began this work in Moscow during the spring, and it

was the cause of his nervous disorders and numerous sleepless nights. These difficulties were partly caused by his want of experience in composition, and partly by his habit of working by night as well as by day. At the end of June he had a terrible nervous breakdown, and the doctor who was called in to see him declared he had narrowly escaped madness, and that his condition was very serious. The most alarming symptoms of the illness were his hallucinations and a constant feeling of dread. That he suffered intensely is evident from the fact that he never again attempted to work through the night. (26.)

This feverish work told upon Tchaikovsky's nerves. His health was so far impaired that he gradually lost strength, until he became quite exhausted and the doctor ordered him to the seaside, or to an inland watering-place, enjoining absolute repose. (Biog. 29.)

The composer's melancholy became a shade darker. "I just idle away the time cruelly," he writes, "and my opera, *The Oprichnik*, has come to a standstill at the first chorus." (Biog. 30.)

At the present moment I am absorbed in the symphony I began during the winter. Add to this, I am in a very nervous, worried and irritable state, highly unfavorable to composition, and even my symphony suffers in consequence. (37.)

I was horribly out of spirits all the time I was composing this symphony last winter. (38.)

On August 7, Tchaikovsky finished the third act of *The Maid of Orleans* and, suffering from physical and nervous exhaustion, left Kamenka for Simaki. (Biog. 37.)

It is my chief anxiety to write more easily and simply as time goes on, and the more I try, the worse I succeed! It is dreadful! (39.)

I am very tired after my day's work. Today I wrote the love duet in the second act, and it is very complicated, so that

at the present moment my brain works with difficulty. I jumped from the first scene of the third act to the fourth, because it is not so easy and I wanted to get the most difficult scene—between Lionel and Joan—off my mind. On the whole I am pleased with myself, but feel rather exhausted. (39.)

To squeeze music out of one's brain every day for ten weeks is indeed an exhausting process. (39.)

. . . the resolve which already existed in his inmost heart, never to return to his old way of life. He attributed this dislike of his former existence to his ill-health, and cherished the hope that the ideal conditions of his life abroad would restore his nerves and soothe his irritability; he was convinced that he would completely recover and took up his professorship once more with a stout heart. (Biog. 38.)

But it proved otherwise. From the month of January, when he was able to arrange his life as he pleased, when, with improved health, the desire to compose awoke once more—from the moment, in fact, in which his real recovery began—life in Moscow seemed to him to be more dreadful and impossible. (Biog. 39.)

Mazeppa creeps along tortoise-fashion, although I work at it daily for several hours. I cannot understand why I am so changed in this respect. At first I feared it was the loss of power that comes with advancing years. (42.)

It now takes me three days to orchestrate a thing that I could formerly have finished in one. (42.)

This undefinable, horrible, torturing malady which declares itself in the fact that I cannot live a day, or an hour, in either of the Russian capitals without suffering, will perhaps be explained to me in some better world. (42.)

The Valse gives me infinite trouble. I am growing old. (44.)

After dinner I squeezed the unsuccessful movement out of my head. What does it mean? I now work with such difficulty. Am I really growing old? (44.)

On returning from a journey he invariably began with his correspondence, which, next to proof-correcting, he found the most unpleasant work. In the nineties his correspondence had attained such volume that Tchaikovsky was frequently engaged upon it from morning till night and often answered thirty letters a day. (Biog. 45.)

A few weeks ago I accidentally took up his *Germinal*, began to read it, got interested and only finished it late at night. I was so upset that I had palpitation and sleep was impossible. Next day I was quite ill. (45.)

My age—although not very advanced—begins to tell. I get very tired now, and can no longer play or read at night as I used. (48.)

I enjoyed writing the first movement, whereas the others were the outcome of strenuous effort, in consequence of which—as far as I remember—I felt quite ill for a time. (48.)

For a long time past letter-writing had ceased to be a pleasant duty; still, it remained a *duty*, which he could only neglect under special circumstances. (Biog. 49.)

Just two months ago I began the composition of the opera. Today I finished the pianoforte score of the second act. This is to me the most dreadful and nerve-exasperating occupation. I believe my ill-health is simply the result of this confounded work. Nazar says I have very much altered the last week or two, and have been in a dreadful state of mind. Whether it is that the worst and most wearisome part of my work in nearing an end, or that the weather is finer, I cannot say, but since yesterday I feel much better. (50.)

My brain is empty; I have not the least pleasure in work. *Hamlet* oppresses me terribly. (51.)

I finished the sketch of the ballet yesterday. You will remember my boasting when you were here that I should get it done in about five days. But I have taken at least a fortnight.

Yes, the old fellow is getting worn out. Not only is his hair turning white as snow and beginning to fall, not only is he losing his teeth, not only do his eyes grow weaker and get tired sooner, not only do his feet begin to drag—but he is growing less capable of accomplishing anything. (51.)

Just now I am busy looking through the pianoforte score of *Iolanthe*. It bothers and annoys me indescribably. Before I went abroad in May I had sketched the first movement and finale of a symphony. Abroad it did not progress in the least, and now I have no time for it. (52.)

Tchaikovsky so often speaks in his letters of his dislike to this kind of work (corrections of orchestral score) that he must have needed extraordinary self-abnegation to take this heavy burden upon his shoulders. (Biog. 52.)

At last, at the very end of August, the vast accumulation of proof-correcting was finished, which, as he himself said, would have almost driven him out of his mind, but for his regular and healthy way of life. (Biog. 52.)

His persistent use of minor keys—the vehicle of doubt, aspiration, longing, morbidly self-bounded thoughts. (Mason.)

Despite his everlasting journeyings and walking, there was a solid basis of eye-labor and accomplished work in Tchaikovsky's life:

A glance at the number of his works, which reaches seventy-six, including ten operas and three ballets; at his letters (I possess, in all, four thousand); at his literary work (sixty-one articles); at his translations and arrangements, and his ten years' teaching, will suffice to convince the most skeptical that his nature knew no moods of *dolce far niente*. (Laroche.)

It appears strange that the sufferer should so persistently see that his "ill-health was the result of his

confounded work", and still not recognize its connection with ocular labor; but today both the public and the profession still stick fast in the same error of observation and logic; both continue to attribute the morbid results to "brain-fag", "intellectual labor", and all the rest, oblivious of the fact that intellectual labor does not exhaust and that the function of the eye, the most important, complex and delicate of all the organs of the body, is forgotten.

What then shall be said of the obverse of the fact—the ever-freshly illustrated truth, that ocular rest, or walking, journeying, country life, living out of doors, etc., are the sole but certain means of getting relief from the suffering due to near-work with the eyes? As with others, so with Tchaikovsky, winter and bad weather, which confined him to the house and compelled greater use of the eyes at near range, increased all sorts of misery and ill-health, while spring and summer and a warmer climate (especially in the Russias) at once brought health and happiness. Note the proofs of this clinical experience in Tchaikovsky's case:

Before the summer holidays came, Tchaikovsky's health was in an unsatisfactory condition. He complains in his letters of insomnia, nervousness and the throbbing sensations in his head, to which he often refers as "my apoplectic symptoms." At the end of April his depression became very apparent and he wrote to his brother Anatol:

"My nerves are altogether shaken." (26.)

We lead a monotonous existence, and are dreadfully bored,

but for this very reason my health is first rate. The saline baths do me a deal of good, and, apart from them, the way of living is excellent. I am very lazy, and have not the least desire to work. (30.)

I rush about like one possessed and never feel tired. (30.)

His constitution was so shaken and impaired by his nervous illness that at least a year's rest was necessary for his complete restoration. (Biog. 37.)

The condition of his health needed complete repose. (Biog. 37.)

His ideal of a summer residence, for which he longed as soon as the trees and fields began to show the first signs of green. (Biog. 30.)

Although the spring is still far off and the frosts are hardly over yet, I have already begun to think of the summer, and to long for the early spring sunshine, which always has such a good effect upon me. (30.)

These periods of hypochondria. All this winter I have been depressed to the verge of despair, and often wished myself dead. Now the spring is here the melancholy has vanished, but I know it will return in greater intensity with each winter to come, and so I have made up my mind to live away from Moscow all next year. (35.)

The few days spent here have done me a great deal of good. First, I have been able to work a little, so that my brother will take the second scene of the opera—not quite finished—back to Moscow with him. Secondly, I feel much better, although I was not very well yesterday. It is only a slight chill, however. (37.)

With the coming spring Tchaikovsky's depression passed away, and he spent the Easter holidays very happily. (Biog. 37.)

On the point of taking leave of foreign lands and turning my face homewards, a sound, sane man, full of renewed strength and energy. (38.)

The sense of increased energy and strength, which always came to him in the lonely life of the country, was unknown in the bustle and stress of the city. (38.)

I know no greater happiness than to spend a few days quite alone in the country. (38.)

Wandered for whole days together in the forest, spent the evenings on the low-lying steppe, and at night, sitting at my open window, I listened to the solemn stillness, which was only broken at rare intervals by some vague, indefinable sound. During this fortnight, without the least effort—just as though I were under the influence of some supernatural force—I sketched out the whole of *The Tempest* overture. (38.)

There came over me that feeling of intense delight which I so often experienced during my country rambles in Russia, and for which I have longed in vain since I have been here. I was alone in the solemn stillness of the woods. Such moments are wonderful, indescribable, not to be compared with any other experience. The indispensable condition is—solitude. I always like walking alone in the country. (38.)

I am feeling splendidly well. My physical health is first rate, my head clear and strong. I observe myself with delight and have come to the conclusion that I am now completely recovered. (38.)

Now I am quite recovered I ought to return to Russia to take up my duties at the Conservatoire and my old ways of life. (38.)

The fact that I profited by your wealth to travel abroad for my health's sake. (38.)

I am in a rose-colored mood. Glad the opera is finished, glad spring is at hand, glad I am well and free. (38.)

I am doing nothing whatever, only wandering through the forests and fields all day long. I want to take a change from my own work, with its eternal proof-correcting. (40.)

Throughout the whole year I have led a calm and cheerful

life, and have been happy, so far as happiness is possible. (40.)

My mental condition was such that I had to collect myself first. What produces this terrible state? I do not understand it myself. . . . Everything has tended to make today go pleasantly and yet I am so depressed, and have suffered so intensely, that I might envy any beggar in the street. It all lies in the fact that life is impossible for me, except in the country or abroad. Why this is so, God knows—but I am simply on the verge of insanity. (42.)

It seems my lot to be always hurrying to finish something. I know this is equally bad for my nerves and my work, but I cannot control myself. I only rest when I am on a journey; that is why traveling has such a beneficial effect on my health. (43.)

After the terrible illness in 1877 he found in Kamenka, far more than in San Remo, Clarens, or France, all he needed for his recovery; during these seven years, it was at Kamenka that he gathered force and recuperated for the life which was becoming infinitely more strenuous and many-sided. (Biog. 37 to 44.)

Wet or fine, Tchaikovsky always went for a walk after dinner. He had read somewhere that, in order to keep in health, a man ought to walk for two hours daily. He observed this rule with as much conscientiousness and superstition as though some terrible catastrophe would follow should he return five minutes too soon. (Biog. 45.)

Before supper, which was served at 8 p. m., Tchaikovsky always took another constitutional. (Biog. 45.)

The three months I spent abroad were lost time as regards work, but I feel I have gained in strength, and can now devote my whole time to it without exhausting myself. (46.)

If only I were twenty years younger! ! ! One thing is certain: my nerves are much stronger, and things which formerly were not to be thought of are now quite possible. Undoubtedly I

owe this to my free life, relieved from all anxiety of earning my daily bread. (47.)

My health is not good. . . . In Carnival week I suffered from the most peculiar nervous headaches. . . . As I felt sure my accursed and shattered nerves were to blame, and I only wanted rest, I hurried into the country. (48.)

I find more and more delight in the cultivation of flowers, and comfort myself with the thought of devoting myself entirely to this occupation when my powers of composition begin to decay. (50.)

He was always fond of moving about. He could not remain long in one spot. But this was chiefly because it always seemed to him that "Every place is better than the one in which we are." Paris, Kamenka, Clarens, Rome, Brailov, Simaki, Tiflis—all in turn were his favorite resorts, which he was delighted to visit and equally pleased to quit. But apart from the ultimate goal, traveling in itself was an enjoyment rather than a dread to Tchaikovsky. (Biog. 52.)

No sooner had he reached home again than he began planning yet another tour. It seemed as though he had become the victim of some blind force which drove him hither and thither at will. This power was not merely complaisance to the demands of others, nor his old passion for traveling, nor the fulfilment of a duty, nor yet the pursuit of applause; still less was it the outcome of a desire for material gain. This mysterious force had its source in an inexplicable, restless, despondent condition of mind, which sought appeasement in any kind of distraction. I cannot explain it as a premonition of his approaching death; there are no grounds whatever for such a supposition. Nor will I, in any case, take upon myself to solve the problem of my brother's last psychological development. (Biog. 52.)

All day long I wander in the forest and bring home quantities of mushrooms. (53.)

Many of his works were planned and his themes invented in these long rambles across country. (Mason.)

Without the key supplied by the oculist, any reader of the Life and Letters of Tchaikovsky must be as unable, as was his biographer, to explain the apparently insensate necessity for country life, journeys, concert tours, and travel over all the countries of Europe, with one trip to the United States. If, at least earlier in his life, he had made a trip to the United States solely to get a scientific pair of spectacles, I scarcely doubt that he might be living today. It was certainly not the love of music that caused us to send for him, nor that motivated his own coming. The sorry account of his visit here would be ludicrous if it were not underlaid with tragedy for the composer, and shame for us. To those who have not learned that personal happiness depends upon the little and overlooked blunder or habit, it will appear ludicrous to say that the one thing which all Europe could not have given him, and which we alone were capable of giving him, would have been of infinitely more value to him than all the money, huzzas, interviewings, and advertising with which we prided ourselves in cursing him.

But resistance, reaction, recuperability, under long-continued "insults", and after unheeded warnings, are finally lost. This loss, as we have so often seen, is likely to fall in the period of presbyopia, when eye-strain is doubled, and the two misfortunes unite to

bring about the final catastrophe. Without needless repetition and emphasis, it is particularly noteworthy that Tchaikovsky's maladies increased in intensity as he entered upon the presbyopic period, and they became more and more unendurable as he advanced in it. There is nothing more pathetic than the added poignancy of his cries with each year from thirty-eight to fifty, and it is most pitiable that when reaction is no more possible the old relief and happiness, once so evident, from country life and journeying, no more returns:

I will not conceal it: all the poetry of country life and solitude has vanished. I do not know why. *Nowhere do I feel so miserable as at home.* If I do not work, I torment myself, am afraid of the future, etc. Is solitude really necessary to me? When I am in town, country life seems a paradise; when I am here, I feel no delight whatever. Today, in particular, I am quite out of tune.

I am passing through a very enigmatical stage on my road to the grave. Something strange, which I cannot understand, is going on within me. A kind of life-weariness has come over me. Sometimes I feel an insane anguish, but not that kind of anguish which is the herald of a new tide of love for life, rather something hopeless, final, and—like every *finale*—a little commonplace. Simultaneously a passionate desire to create. The devil knows what it is. In fact, sometimes I feel my song is sung, and then again an unconquerable impulse, either to give it fresh life, or to start a new song. . . . As I have said, I do not know what has come to me. For instance, there was a time when I loved Italy and Florence. Now I have to make a great

effort to emerge from my shell. When I do go out, I feel no pleasure whatever, either in the blue sky of Italy, in the sun that shines from it, in the architectural beauties I see around me, or in the teeming life of the streets. Formerly all this enchanted me, and quickened my imagination. Perhaps my trouble actually lies in those fifty years to which I shall attain two months hence, and my imagination will no longer take color from its surroundings. But enough of this! I am working hard. Whether what I am doing is really good is a question to which only posterity can give the answer. (50.)

This thought and experience gives significance to the awful and hopeless beauty of the Pathetic Symphony, the last and greatest of the composer's works. Mason asks:

. . . . Has not disease, as well as health, its relations to our fortunes? . . . His mental temper, never bright, was shadowed with a pathological gloom throughout his life.

In the majority of cases of severe eyestrain, past or present, the discerning oculist finds a curious result that may be too easily and thoughtlessly passed over. It is the inhibition of thought and normal mental action which comes from the derouted and morbid ocular reflex. How frequently it is found that the sufferer sits staring with blank loss of power to concentrate his mind upon the task or the writing before him? There is a mysterious loss of imagination, an inability either to think or to execute. The intellect and creative faculty seem palsied. Tchaikovsky reillustrates this

inhibiting effect of ever-attempted but impossible ocular function:

I often sit for hours pen in hand, and have no idea how to begin my articles. I think I shall never hammer anything out; and afterwards people praise the fluency and ease of the writing! Remember what pains Zaremba's exercises cost me. Do you forget how in the summer of 1866 I worked my nerves to pieces over my First Symphony? And even now I often gnaw my nails to the quick, smoke any number of cigarettes, and pace up and down my room for long before I can evolve a particular motive or theme. (35.)

I am very well pleased with my musical work. As regards the literary side of it, I believe it will cost me some days of my life. I cannot describe how it exhausts me. How many pen-holders I gnaw to pieces before a few lines grow perfect! How often I jump up in sheer despair because I cannot find a rhyme, or the meter goes wrong, or because I have absolutely no notion what this or that character would say at a particular moment. (39.)

I no longer compose anything—a sure indication of an agitated mind. (41.)

From November, 1880, until September, 1881, Tchaikovsky wrote nothing. (Biog. 41.)

Inspiration will not come; every day I begin something and lose heart. Then, instead of waiting for inspiration, I begin to be afraid lest I am played out, with the result that I am thoroughly dissatisfied with myself. And yet the conditions of life are satisfactory: wonderful scenery and the society of those I love. (43.)

I notice that the older I grow, the more trouble my orchestration gives me. I judge myself more severely, more critical with regard to light and shade. In such a case the country is a real boon. (47.)

I have been sitting all day over two pages, yet they will not come out as I wish. (53.)

Not only will the individual or special task "not get itself done", as Carlyle said, but any work whatsoever, and the life-work itself, is inhibited and frozen in the attempt, and the loss of inspiration is here, as frequently elsewhere, painfully deplored.

But work will not come back to me. Rome and Roman life are too characteristic, too exciting and full of variety, to permit of my sticking to my writing-table. However, I hope the power of work will gradually return. (39.)

Oh, my God, if I could only find strength and gladness of heart for new works! Just now I can only go on patching up the old ones. (37.)

I believe I shall never write anything good again. I am no longer in a condition to compose. (41.)

If I were young, this aversion from composition might be explained by the fact that I was gathering my forces, and would suddenly strike out some new path of my own making. But, alas! the years are beginning to tell. To write, in a naive way, as the bird sings, is no longer possible, and I lack energy to invent something new. I do not tell you this because I hope for your encouraging denial, but simply as a fact. I do not regret it. I have worked much in my time, in a desultory way, and now I am tired. It is time to rest. (42.)

Formerly I wrote as easily, and as much in obedience to the law of nature, as a fish swims in water or a bird flies. Now I am like a man who carries a precious but heavy burden, and who must bear it to the last at any cost. I, too, shall bear mine to the end, but sometimes I fear my strength is broken and I shall be forced to cry halt! (42.)

Annoyed with my failures. Very dissatisfied because everything that comes into my head is so commonplace. Am I played out? (44.)

No impulse for creative work. What does this mean? Have I written myself out? No ideas, no inclination? Still I am hoping gradually to collect material for a symphony. (48.)

Am I done for and dried up? Perhaps there is yet some subject which could inspire me; but I ought to compose no more absolute music, symphony or chamber works. To live without work would weary me. What am I to do? Fold my hands as far as composition is concerned and try to forget it? It is difficult to decide. I think and think, and do not know how to settle the question. In any case, the outlook has not been cheerful the last three days.

When he should have been at the acme of his creative power, he gave his best energies and care to a work which was at once recognized as without inspiration. He had hammered it out of a weary and inhibited and morbid brain, and he could not himself understand the reason of its ill success:

From the press I have encountered such hatred and hostility, that, even now, I cannot account for it. On no other opera have I expended so much labor as sacrifice; yet never before have I been so persecuted by the critics. (47.)

It is an undoubted *fiasco*. This failure has wounded me in my inmost soul, for I never worked with greater ardor than at *The Enchantress*. (47.)

The reason for the failure of *The Enchantress* must be sought elsewhere; possibly in the defective interpretation of both the chief parts; but more probably in the qualities of the music,

which still awaits its just evaluation at the hands of a competent critic. (Biog. 47.)

In cases of severe eyestrain, whether in private practice or as gleaned from the biographies of men and women of genius, one of the most appalling symptoms frequently found is hopelessness, despair, intense mental suffering, an irresistible feeling that life is worthless, and, although young, soon to come to an end. In Tchaikovsky's case, as was true in that of many others, it once reached the suicidal impulse. There are few minds than can sanely and successfully resist the life-long insistence and maddening tendencies of continuous, agonizing, and mysterious disease. Note the age at which this despair occurs:

I cannot shake off the conviction that I shall not live long, and shall leave my symphony unfinished. (26.)

I am already very tired of life. (27.)

Tchaikovsky never gives the true reason for his yearning after solitude and a life of "heavenly quiet and serenity," but it certainly did not proceed from "misanthropy", "indolence" or weariness of life. (Biog. 27.)

What comes of it all? I am old and can enjoy nothing more. I live on my memories and my hopes. But what is there to hope for? (32.)

Boredom consumes us all, and the reason is that we are growing old. Yes, it is useless to conceal that every moment brings us nearer to the grave. (32.)

Misanthropical feeling comes over me, which has often happened before. It comes partly from my nerves, which sometimes

get out of gear for no particular reason, and partly from the rather uncertain fate of my compositions. (32.)

The things which once seemed to him new and interesting now appeared more and more wearisome and unprofitable, and his moods of depression became more frequent, more intense, and of longer duration. (Biog. 33.)

You write of being out of spirits. Believe me, I am the same. (35.)

I am overcome by a sense of loneliness, of desolation. (35.)

In my life, too, there are days, hours, weeks, nay, and months, in which everything looks black, when I am tormented by the thought that I am forsaken, that no one cares for me. Indeed, my life is of little worth to anyone. Were I to vanish from the face of the earth today, it would be no great loss to Russian music, and would certainly cause no one great unhappiness. (36.)

In March and April he began to suffer again from mental depression. (37.)

The fact that we both suffer from the same malady would alone suffice to draw us together. This malady is misanthropy; but a peculiar form of misanthropy, which certainly does not spring from hatred or contempt for mankind. (37.)

At my age when one has nothing more to hope in the future. (44.)

After convalescence, which had lasted seven years, Tchaikovsky returned to all these activities with vigor and enjoyment, although after a time his courage flagged and all his strength of will had to be requisitioned to enable him to "keep up this sort of existence." Enthusiasm waned and there succeeded—in his own words—"a life-weariness, and at times an insane depression; something hopeless, despairing and final—and (as in every *finale*) a sense of triviality." (Biog. 37.)

Overcome with insane depression. (46.)

I sit at home full of remorse. The cause of my remorse is

this: life is passing away and draws near to its end, and yet I have not fathomed it. (47.)

My absent-mindedness is becoming almost unbearable, and is a sign of advancing age. However, every one was surprised to learn that I was only fifty-one yesterday. Carnegie especially was very much astonished. They all thought, except those who knew something of my life, that I was much older. Probably I have aged very much in the last few years. I feel I have lost vitality. (51.)

I must confess to a morbid fear and horror, as though I were entering the kingdom of the dead and the world of those who had long since vanished. (52.)

. . . . He says that had he remained a day longer in Moscow he should have drowned himself, and it is said that he did go so far, in his terrible depression, as to stand up to his chest in the river one frosty September night, "in the hope of literally catching his death of cold, and getting rid of his trouble without scandal." (Mason.)

Readers of the clinical biographies of other eyestrain sufferers have noticed the repeated occurrence of the fact that these so often have been compelled to work at a "white heat", with an intensity of emotion and recklessness of result that was itself morbid, and a certain indication of an underlying morbid cause. It was only thus that the nervous mechanism could be whipped and spurred to overcome the resistances and inhibitions of the balking mechanism of eye and brain. Again the case of Tchaikovsky illustrates:

I should feel quite happy and contented here, were it not for the morbid, restless need of hurrying on my work, which tires me dreadfully, without being in the least necessary. (43.)

In any case my mental condition has been very gloomy of late. The composition of the *Manfred* Symphony—a work highly tragic in character—is so difficult and complicated that at times I myself become a Manfred. All the same, I am consumed with the desire to finish it as soon as possible, and am straining every nerve: result—extreme exhaustion. This is the eternal *cercle vicieux* in which I am forever turning without finding an issue. If I have no work, I worry and bore myself; when I have it, I work far beyond my strength. (45.)

There are times when it seems to me it would be wise to cease from composing for a while; to travel and rest. But an unconquerable desire for work gains the upper hand and chains me to my desk and piano. (45.)

I cannot live without work, but why do circumstances always compel me to be in a hurry, to have to overtax my strength? (47.)

In the old—not the modern—textbooks on “migraine”, and in the case of every patient who has long endured this disease, it is noticed that there is a seeming contradiction of health and happiness almost synchronously, or quickly alternating, with the deepest agony and dejection. The following excerpts show the symptoms reappearing in Tchaikovsky’s case:

I have suffered all the winter, but my physical health is not in the least impaired. (35.)

More and more misanthropical. Imagine, now-a-days, I am often drawn towards my monastic life, or something similar. Do not fancy I am physically out of health. I am quite well, sleep well, eat even better. (35.)

Forgive me, dear friend, for boring you with these continual

complaints about my health, which are out of place, for in reality I am a perfectly sound man, and the little ailments about which I grumble are not serious. (38.)

A splitting headache, and spent a wretched night. I recovered during the return journey to Petersburg, and today I feel quite refreshed. (39.)

My health is better. I have gone through such a terrible attack of nervous headache, I thought I must have died. I fell asleep so worn out, I had not even strength to undress. When I awoke I was well. (43.)

He was no longer a misanthropist, rather he sought those to whom he was dear, not only as a man, but as a personage. (44.)

When I am quite well—as I am at present—I am seized with a feverish thirst for work, but the thought of the shortness of human life paralyzes all my energy. (46.)

I was ill again after my last letter to you. This time I was so bad that I decided to send for the doctor. It seemed to me that I was about to have a strange illness. Suddenly I received a telegram saying that I must be at the rehearsal. I answered that the rehearsal was not to be thought of, for I could not travel. But at the end of half an hour I suddenly felt so well that—in spite of terrible disinclination—I went to Moscow. Every trace of headache, which for ten days had so affected me, vanished. Is not this a curious pathological case? (46.)

Complete success. Great enjoyment—but still, why this drop of gall in my honey-pot. (47.)

In this question lie the germs of that weariness and suffering which had there grown in Tchaikovsky's soul simultaneously with his pursuit of fame, and reached their greatest intensity in the moment of the composer's greatest triumphs. (Biog. 47.)

The work went easily and his health was good. (51.)

Increasing nostalgia and depression of spirits. (52.)

I was taken so ill in the carriage that I frightened my fellow-passengers by becoming delirious, and had to stop at Khartov. After taking my usual remedies and a long sleep, I awoke quite well in the morning. (52.)

This year, 1893, opened with a period of serene content, for which the creation of his Sixth, or so-called "Pathetic", Symphony was mainly accountable. The composition of this work seems to have been an act of exorcism, whereby he cast out all the dark spirits which had possessed him in the preceding years. (Biog. 52.)

At this time he suffered from a terrible attack of headache, which never left him, and threatened to become a chronic ailment. It departed, however, with extraordinary suddenness on the fourteenth day after the first paroxysm. (52.)

In spite of the discomfiting news which met him in all directions, from the time of his return from England to the end of his life, Tchaikovsky was as serene and cheerful as at any period in his existence. (Biog. 53.)

I was very ill. (53.)

Just lately I have been dreadfully bored and misanthropical. I do not know why. I sit in my room and see no one but the waiter. I long for home, work and my normal existence. (53.)

He had never felt better or happier in his life. (*Kashkin*, 53.)

That the case of Tchaikovsky may in most of its phases illustrate the clinical picture of "migraine", as described by the careful observers of a past (not present) generation, one must add the frequently observed symptom of partial paralyses, or pareses:

At this time he was suffering from a nervous affection of the right hand, which made conducting a matter of considerable difficulty. (Biog. 51.)

In America the news that I could not go, because my right hand was disabled, reached them by cable, and they were very much upset. Now they are awaiting an answer—yes or no. (51.)

Yesterday I suffered so much that I could neither sleep nor eat, which is very unusual for me. I suffer not only from torments which cannot be put into words (there is one place in my new symphony—the Sixth—where they seem to me adequately expressed), but from a dislike to strangers and an indefinable terror—though of what the devil only knows. This state makes itself felt by internal pains and loss of power in my legs. However, it is for the last time in my life. (53.)

There is also found the usual phenomenon that the eyes, the original source of the entire train of reflex symptoms, only rarely show painful signs of the disease, and these but temporarily.

Another unpleasant experience took the form of an obstinate affection of the eyes, which hindered him from working regularly. (25.)

In spite of his eyes being affected and his constant change of quarters. (25.)

My health is good: only one thing troubles me a little—my eyesight, which is tried by my work. It is so much weaker than formerly that I have been obliged to get a pair of eye-glasses, which I am told are very becoming to me. (32.)

There are ninety-nine cases of atypical “migraine” to one that some writers call “typical”. I have omitted many references and others have been given in previous pages, to the complaint of headaches, neuralgia,

neuralgic headaches, etc., scattered through the letters and life of Tchaikovsky. Severe eyestrain will usually result in some form of cerebral disorder or ache, or in "bad digestion", "dyspepsia", "catarrh of the stomach", etc. The latter class of disorders are persistently complained of by Tchaikovsky. For instance:

Suffering from a form of dyspepsia. (37.)

I wish some one could explain to me the origin of that curious exhaustion which comes upon me almost every evening, about which I have already written to you. I cannot say it is altogether disagreeable, because it usually ends in a heavy, almost lethargic sleep, and such repose is bliss. Nevertheless the attacks are tiresome and unpleasant, because of the vague anxiety, the undefinable yearning, which take an inconceivably strong hold upon my spirit, and end in a positive longing for Nirvana—*la soif du néant*. Probably the cause of this psychological phenomenon is of quite a prosaic nature; I think it is not so much a mental ailment as a result of bad digestion, a sequel of my catarrh of the stomach. Unluckily we cannot get over the fact that the material influences the spiritual! (38.)

In spite of the greatest care and moderation, I suffer from dyspepsia. It is not serious, and I have no doubt a cure at Vichy will completely set me up. (40.)

One wonders if a certain number of cases of alcoholic dissipation are not being constantly caused by the nervous disorders and irritations due to eyestrain. The note is not wanting in Tchaikovsky's case.

Since the day you left I have taken several glasses of brandy at night, and during the day I drank a good deal. I cannot

do without it. I never feel calm except when I have taken a little too much. I have accustomed myself so much to this secret tipping that I feel a kind of joy at the sight of the bottle I keep near me. I can only write my letters after a nip. This is a proof that I am still out of health. (38.)

A careless or prejudiced critic might think that Tchaikovsky's melancholy and ill-health were largely due to his ill success in life and as a musician. The following excerpts will answer:

The people around me often wonder at my taciturnity and my apparent ill-temper, while actually I do not lead an unhappy existence. What more can a man want whose prospects are good, who is liked, and whose artistic work meets with appreciation? (27.)

I assert that life is beautiful in spite of everything! This "everything" includes the following items: Illness; I am getting much too stout; and my nerves are all to pieces. (30.)

He realized his wildest dreams of fame, and attained to such prosperity and universal honor as rarely fall to the lot of an artist during his lifetime. (Biog. 47.)

Physically neither better nor worse than in former years, possessing the unlimited affections of those whom he loved in return,—he was, to all appearance, an example of mortal happiness, yet in reality he was less happy than before. (Biog. 47.)

And this regret grew keener, as his weariness grew more intolerable. The more he accustomed his temperament to unsuitable occupations, the further he advanced his reputation, the more complete was his disenchantment with the prize. Radiant and glittering as it had appeared from afar, seen closer, it proved insignificant and tarnished. Hence the profound disillusionment, "the insane depression", the something "hopeless and

final" which make so dark a background to the picture of his brilliant success at home and abroad. (Biog. 47.)

That the nonsensical word, *hysteria*, may not be used, Tchaikovsky replied in advance:

To my regret, however, you seem to see what is good for me precisely where I—and several others—see what is inimical to my health; in the very thing which appears to me an unprofitable and aimless exertion. . . . All you have written to me, and also your manner of saying it, only proves *how little you know me*, as I have frequently observed on former occasions. Possibly you may be right, and I am only *putting it on*; but that is precisely the nature of my illness. (38.)

Another ancient and humorous superstition had also to be illustrated:

His first impressions of Vichy, whither he had been ordered by his physician, were far from favorable, but the local physician persuaded him to remain at least long enough for a "demi-cure", from which he derived great benefit. (35.)

Tchaikovsky now resembled those individuals who do not recognize the true cause of their sufferings, and, therefore, have recourse to the wrong treatment. (Biog. 35.)

The sole object of the journey mentioned in this letter was to take a cure at Vichy. The catarrh of the stomach from which he suffered had been a trouble to Tchaikovsky for the last twenty years.* Once, while staying with Kondratiev at Nizy, the local doctor had recommended him *Natron* water. From that time

*"Who has not seen correction of errors of refraction relieve so-called bilious attacks, periodical vomiting, anorexia, indigestion and other gastric symptoms?" Prof. John H. Musser, *Journal American Medical Association*, Nov. 4, 1905.

he could not exist without it, and took it in such quantities that he ended by acquiring a kind of taste for it. But it did not cure his complaint, which grew worse and worse, so that in 1876 he had to undergo a course of mineral waters. The catarrhal trouble was not entirely cured, however, but returned at intervals with more or less intensity. About the end of the eighties his condition grew worse. Once during the rehearsals for *Pique Dame*, while staying at the Hotel Rossiya, in St. Petersburg, he sent for his brother Modeste, and declared he "could not live through the night." This turned his thoughts more and more to the "hateful but health-giving Vichy." But the periods of rest after his various tours, and of work in his "hermit's cave", at Klin, were so dear to him that until 1892 he could not make up his mind to revisit this watering place. This year he only decided to go because the health of Vladimir Davidov equally demanded a cure at Vichy. He hoped in this congenial company to escape his usual homesickness, and that it might even prove a pleasure to take his nephew abroad. (Biog. 52.)

To complete the sketch these paragraphs may be added:

"I was shocked at his appearance," he writes, "for he had aged so much that I only recognized him by his wonderful blue eyes. A man old at fifty! His delicate constitution had suffered terribly from his incessant creative work." (Door, 51.)

But this was probably the fatal moment in his indisposition, for, while talking, he poured out a glass of water and drank a long draught. The water had not been boiled, and they were dismayed at his imprudence. But he was not in the least alarmed, and tried to calm their fears. He dreaded cholera less than any other illness. After this his condition grew worse, but he attributed all his discomfort to a copious dose of Hunyadi which

he had taken earlier in the day, and still declined to send for his favorite doctor, Bertenson. (Biog. 53.)

Death occurred on October 25 (November 6), at the age of fifty-three.

And why this death at the age of fifty-three? It is not an explanation to say that it was due to cholera, even if one admits the correctness of the pretty evidently false diagnosis. This feeling is expressed by his brother, who wrote:

As at the beginning of the sixties, when he chose a musical career, and in 1885, when he resolved to "show himself in the eyes of the world," so also at this juncture, we are conscious of a feeling *that things could not have gone on much longer*. (Biog. 52.)

His death, which came to solve the problem, seemed fortuitous. Yet it is clear to me that it came at a moment *when things could not have gone on much longer*; nor can I shake off the impression that the years 1892 and 1893 were the dark harbingers of a new and serene epoch. (Biog. 52.)

Despite the smiles of the neurologists, or diagnosticians who care not for the forty years of functional disease which preceded anatomic pathology, or the irresistible impact of infectious disease, the explanation of Tchaikovsky's death lies in the life-long preparation of the "soil" by eyestrain, doubled now by presbyopia. The lethal diseases are in truth often but the executioners of long precedent functional disorders. Imitating a foolish science, his biographer explains the life

disorder by the ancient but still living superstition of "heredity:"

His one certain inheritance seems to have been an abnormally neurotic tendency, which probably came to him through his grandfather Assier, who suffered from epilepsy.

His grandfather was an epileptic, and his own symptoms pointed to an inherited nervous irritability. (Mason.)

Tchaikovsky also echoed the nonsense that still spooks about the professional and biographic mind:

My nerves are poor, but this cannot be helped, and is not of much consequence. Whose nerves are not disordered in our generation—especially among our artists? (32.)

It this theory seems to the unobservant to have some ground when applied to musicians and literary workers, it may be suggested that no sign of "nerves" and "migraine" is found in Brahms, Mozart, Verdi, Mendelssohn, Goethe, Mommsen, Gladstone, and thousands of others in similar callings. Then the sculptors and painters and actors are also "artists", and one will seek almost in vain for the symptoms of eyestrain in these three classes of men.

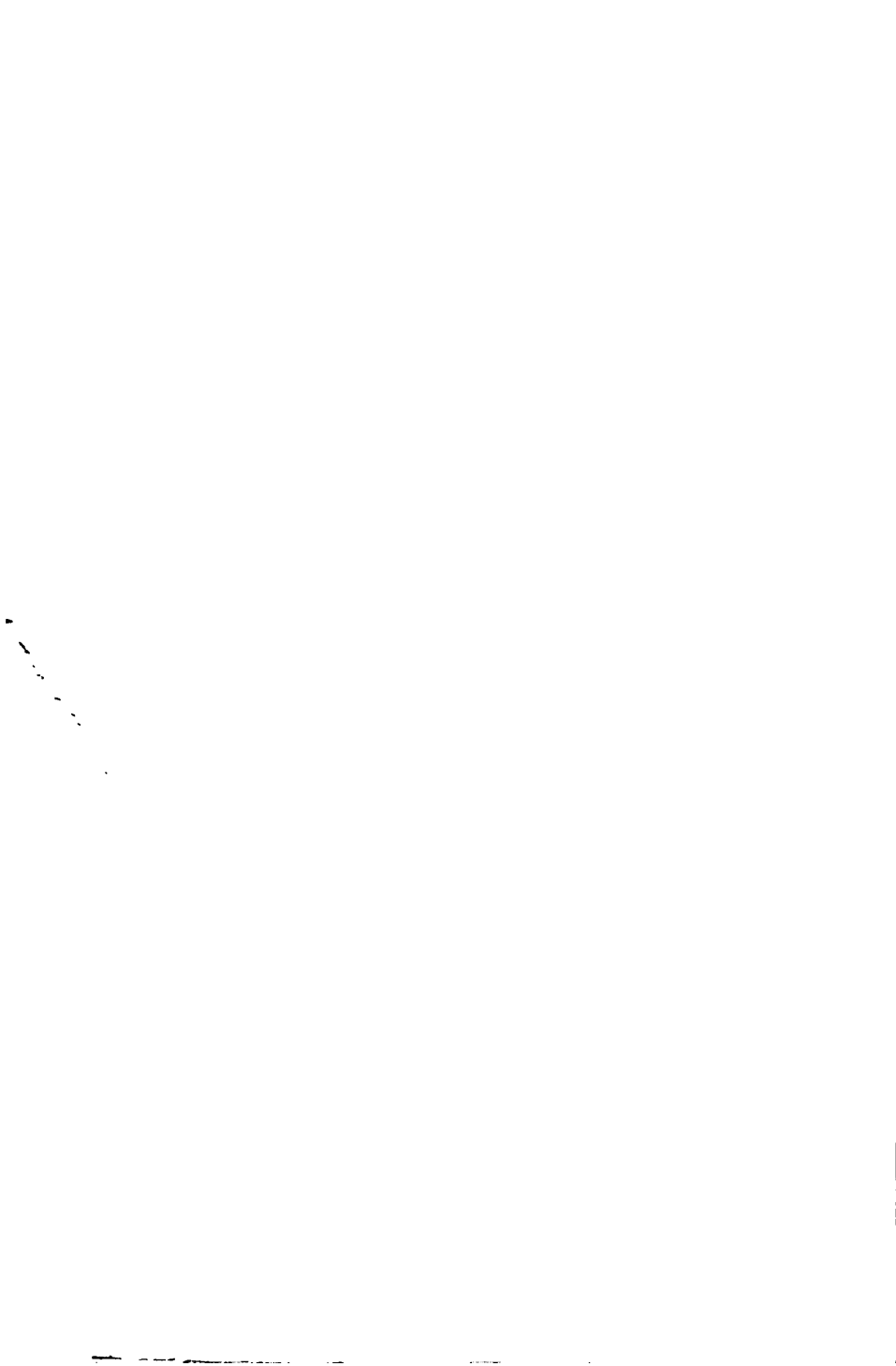
In the midst of the perplexity, mystery and pain of his life, like Parkman, Carlyle, and the majority of such sufferers, Tchaikovsky was struck with the tormenting puzzle of the nature of his life ailment, and he wrote as follows:

Dear friend, leading such a life, amid all these beautiful impressions of nature and art, ought not a man to be happy? And

yet a worm continually gnaws in secret at my heart. I sleep badly, and do not feel that courage and freshness which I might except under the present conditions. Only for a moment can I conquer my mental depression. My God! What an incomprehensible and complicated machine the human organism is! We shall never solve the various phenomena of our spiritual and material existence. And how can we draw the line between the intellectual and physiological phenomena of our life? At times it seems to me as though I suffered from a mysterious but purely physical malady which influences my mental phases. Lately I have thought my heart was out of order; but then I remembered that last summer the doctor who examined it declared my heart to be absolutely sound. So I must lay the blame on my nerves—but what are nerves? Why, on one and the same day, without any apparent reason, do they act quite normally for a time, and then lose their elasticity and energy, and leave one incapable of work and insensible to artistic impressions? These are riddles. (40.)

This is a genuinely scientific questioning, and millions of other sufferers in the last and in the present generation might have found the easy and simple key to the mystery, an easy and now wellknown solution of the “riddles”, and the relief of their torments, if the medical profession had exhibited the same or a slightly better logical and clinical acumen.

FLAUBERT.



CHAPTER V.

FLAUBERT.*

He was a writer of rare talent; had it not been for the nervous disease which seized him at the outset of life, he would have become a man of genius.—*Maxime Du Camp*.

WRITING in their diary in 1863 the brothers Goncourt say that Flaubert told them that when a child he became so absorbed in his reading that he would bite his tongue, twist a lock of hair in his fingers, and sometimes he would fall to the floor. Once he fell against a library window and cut his nose. Both the fact and its significance have been overlooked by the many who have written on Flaubert.

When Flaubert came to Paris to study law, he was 21 years of age, and of "heroic beauty". Many have enthusiastically described the perfection of his skin, head, his "enormous eyes", his hair, shoulders, stature, eye-brows; his "trumpet-like voice", his gestures, his laugh; his abounding health, impetuosity, impatience, dominating character, etc. "Gustave was a giant." So physically strong was he that Du Camp says the excesses of his Paris student days knew

* *Medical Record*, April 14, 1906.

no limits; he would study all night, run about the whole day, squander energy like a madman, careless of sleep, reckless of every law of moderation of health.

He did not like law, and so little did he care for it that two years later, even with his all-absorbing intellect and splendid memory, he was blackballed by his examiners and he returned, in August, 1843, to his home at Rouen. His irrepressible energy of body and mind, and the inviting opportunities to give it rein in Paris, had saved him from injuring his health, and if his life had been rightly ordered, he might have lived a long, happy, and healthy life. His friend Du Camp says of him that had it not been for the nervous disease which seized him at the outset of life he would have become a man of genius.

In October, two months after Flaubert's return to Rouen, he had what is called his first attack of "epilepsy"; his biographers forget his swoonings, or faintings and fallings, years before and while a child. And they also ignore Flaubert's own testimony as to a nocturnal attack, a month before he left Paris and while studying hard for his final examinations. He remembered that he awoke one morning in a condition of extraordinary lassitude which lasted for a week, and he was sure that this, his "first," had taken place during sleep. Du Camp adds that he was probably right, "because these nocturnal attacks were frequent." "These nocturnal attacks," he continues,

"affected him less than the others, bringing on decided fits of misanthropy. Once when he was seized in the neighborhood of Sotteville he secluded himself for several months without going out." There was thus no sudden onset of the disease, as one would believe from the reports, but a beginning in childhood, induced always by excessive reading or study. The frequently described "first" seizure occurred two months after his return to Rouen, while riding in the night with his brother, a practising physician, in a carriage. It was very dark, and in passing a wagon the light flashed in Flaubert's face,* and he fell, unconscious, we gather, and immediately, according to medical custom, was bled by his brother.† Fourteen attacks followed in the next two weeks, probably encouraged by the anemia produced by the terrible bleedings to which parental solicitude and science subjected him. "Excess of plethora, too much energy, and force" said the father, and there was a forbidding of alcohol, of wine, of coffee, of food, and of tobacco. He was stuffed with valerian, indigo,

* Another sign of the ocular origin of Flaubert's seizures is this fact of the influence of light as an incidental cause. In the two attacks described for us in detail, it was light suddenly flashing upon the eyes and further arousing the irritated surcharged optical centers.

† The poor man seems to have been bled nearly to death, by his father, in every subsequent attack. Once when no blood could be got, his father scalded the patient's hand, inadvertently, of course, in the attempt to arouse circulation and get more blood. The wound was long in healing, and Flaubert carried the scars all his life.

and castoreum. He gulped down the drugs with resignation, ate a little white meat, did not smoke, drank decoctions of orange leaves, smiled, and said Sauterne would taste better. Then he read the books in his father's library on nervous diseases, and said, "I am lost!" Not forgetting the reading, one does not wonder that the treatment kept up the seizures. Du Camp describes a typical example:

"Suddenly, without apparent cause, Gustave raised his head and became very pale; he had felt the aura, the mysterious breath which passes over the face like the flitting of a ghost; his expression was that of anguish, and he raised his shoulders with a gesture of distressing discouragement. He said, *There is a flame in my left eye*; then in a few seconds: *The flame is in the right eye, everything is colored yellow*.* Sometimes this peculiar condition lasted for several minutes. It was evident that he hoped the warning would pass without an attack. Then his face would grow still more bloodless, and take on an expression of despair; rapidly he would then walk, or run, to his bed, stretch himself out upon it, gloomy and dejected, as if alive in his shroud, and cry out: *I hold the reins, there is the wagon, I hear the bell—ah, I see the lantern of the inn!* There followed a harrowing moan, the vivid tone of which still vibrates in my ear, and the convulsion followed. This paroxysm into which his whole being entered with fear, was invariably succeeded by profound sleep, and great lassitude for several days."

* If there is any value in the theory of the indication of the seat of the lesion in epilepsy from the peripheral organ first affected, then the ocular nature of the aura in Flaubert's case deserves consideration.

Dr. Dumesnil, one of Flaubert's many biographers and critics, has written a literary or semimedical clinic, in which he seeks to show that his patient did not have "typical" epilepsy, but that his disease should be called "hysteroneurasthenia." The word raises a smile, and we may pardon the Frenchman's turn for systematization, bringing everything into a *cadre*, or deftly forcing clinical facts into a rigid theoretic pattern. The distinction does not aid us at all to understand either the disease, or its etiology, does not even help us in the simple matter of symptomatology. It is indeed the prototype of a very modern morbid habit among physicians of a certain cast of mind, who cry "atypical" when the particular clinical figure cannot be made to fit into the nosologic puzzle. The more shrewd observer knows that with rare exceptions every case is individual; not even those called infectious and organic are identical in their histories, and when it is a question of functional and psychic diseases, all theories and typicalities end in thin air and ludicrousness. The epileptic seizure in many chronic cases is so uniform that the word typical has been applied to it, but even here there are infinite variations chronicled, while in the early stages, the life-clinic, and the petit mal types of the disease, there are as many types as there are cases, and there are a thousand atypical examples to one that is properly or foolishly denominated "typical."

Beyond question, Flaubert's seizures will not fit into the crude, "classic", and outworn framework of those lost in the impasse of nominalism, and theory-worshipping. The aura lasted too long, "several minutes", leaving time for speech, gestures, acts, walking, etc. Then there were sentences repeated before the paroxysm. There was no frothing, no biting the tongue. There was long slumber afterwards. There was no mental deterioration, properly speaking, and the disease was at an end in a few years.

So far as we may be certain, there were never any true attacks after those of 1843, except one in 1846. Du Camp spent a part of the summer of 1846 with his friend at Croisset, and nothing is said as to seizures. In May, 1847, the two friends set out from Paris for a walking tour in Brittany, and on the fourth day there was a "crise nerveuse." The famous Dr. Brettonneau was sent for. "He confessed his ignorance and said: Our science is but a series of desiderata, and we have only reached the point of asking what is Migraine?"

This is the first time that this wonderful word has been heard applied to Flaubert's disease.

Du Camp proceeds to say that Brettonneau ordered such huge doses of quinine that even Du Camp objected. To which the physician replied: "Sulphate of quinine is good for nothing if it does not produce in the organism the effect of the shooting a cannon." Whether it was due to the cannon shot or to the ocular rest and the

open air active life, there were no further attacks, either of "epilepsy", "hysteroneurasthenia", or even of "migraine", during the four months' tour. We read that the walkers carried on their backs thirty volumes of books!

"When I arrived in Rouen," says Du Camp, "Flaubert's father was bearing a burden of which the effects were seen in his face. One read there of humiliation, despair, and a sort of resignation before a power which he could not conquer. His science was paralyzed before an incurable disease, and his paternal affection suffered because of the powerlessness of his art. The sacred disease, the great neurosis, what Paracelsus calls man's earthquake, had struck Gustave, and brought him to the ground. The poor giant bore the disaster as philosophically as he could. He tried to laugh, or be witty, and to reassure those about him; but he forgot his role, his head fell, and it was easy to see with what his thoughts were busy."

"His nervous malady threw a veil, as it were, over his whole life," and from this time, as he told George Sand, he was "afraid of life." For three years he never went out without a medical attendant, and indeed during his whole life he kept somebody near him. From this cause he hardly ever walked, preferring a carriage, and his fear degenerated into a strange rule of hygiene that walking itself was hurtful. He retreated not only into solitude, but into himself, and, with the

exception of the noise he himself made, his mother's care was to envelop him in an atmosphere of perfect calm. She watched over him all her life, looking for the slightest symptom of ill-health, and at every unusual noise or silence she would run to the door.

To the trained oculist who has cured a number of epileptic patients, it matters not what name is tacked upon the clinical facts; and to one who seeks the single cause of the individual case of disease, or the pathogenesis of the affection generally, such meticulous foibles provoke either mirth or disgust, possibly both.

All such puerilities are, or should be, forgotten in Flaubert's case, because of the tragedy that followed the first attacks. Instead of a joyous, expansive, energetic, exuberant healthfulness of mind, there was gloom, silence, self-repression—a most morbid psychosis. Previous to this time he had played the dilettante with the poison of pessimism; he had tasted and tested it in jocular mood; he now fed upon it, and it bit into every cell of his body, and attended every stirring of his psyche.

This disease shattered his life, rendering him solitary and unsociable. He did not speak of it willingly, but in strict confidence he did so freely. Never was he known to mention the true name of his affliction, but alluded only to his "attack of nerves." (Du Camp.)

I have had two distinct lives * * * my active, emotional, passionate life, filled with somersaults, contradictions, and manifold sensations, came to an end at the age of twenty-two. (25.)

Even among physicians few were better equipped as regards medical science than Flaubert. It is therefore of interest to see how he looked upon his own case. The following excerpts are illustrative:

You asked me how I cured myself of the nervous hallucinations from which I formerly suffered? In two ways: (1) By studying them scientifically, that is to say, by trying to understand them; and (2) by force of will. I have often felt insanity coming upon me. There was a whirl of ideas and images in my poor brain, in which my consciousness, my *me*, seemed to founder like a ship beneath a storm. But I clung desperately to my reason. It prevailed over everything though besieged and beaten upon. At other times I used to try, by means of imagination, to give myself these horrible sufferings factitiously. I have played with madness and fantasy like Mithridates with the poisons. I was sustained by a mighty pride, and I conquered the mischief by wrestling with it. (36.)

He spoke correctly when he said, "I am the Victim of Physiology." (Du Camp.)

There are only two or three years (from 17 to 19) in which I have lived in full. * * * Since then I have deteriorated furiously; some mornings I am frightened at myself, I am so wrinkled and used up. * * * But I do not regret my youth. I was atrociously weary, I dreamed of suicide! I was devoured with every kind of melancholy. My nervous malady has done me good, for it brought all this down to the physical basis and left my head cooler, besides making me acquainted with curious psychologic phenomena of which no one has any idea or rather has never felt. (32.)

In my youth I was horribly wearied, I dreamed of suicide, I consumed myself in all possible kinds of melancholy; my nervous malady did me good, it diverted all that to the physical element,

and left my head cooler, and then it introduced me to curious psychological phenomena, of which no one has any idea or rather which no one has felt. I will take my revenge some day, I will utilize them in a book (referring to *St. Anthony*), but as it is a subject which frightens me, speaking from the point of view of health, I must wait in order to be able to give these impressions to myself artificially, ideally, and so without danger to myself or my work. (32.)

My nervous disease was the froth of these little intellectual facetiæ. Each attack was a kind of hemorrhage of innervation, seminal losses of the picturesque powers of the brain, a hundred thousand images springing at once like fire works. There was an atrocious tearing of the soul from the body (I was many times convinced I was dead), but my personality, the essential, rational being held out to the end; without this suffering I would have been worthless because I should have been purely passive, and I always retained consciousness even when I was unable to speak. (32.)

I also had my nervous period, my sentimental epoch, and like a galley slave I have its scar on my neck. With my burned hand I have the right now to write concerning the nature of fire. (31.)

But the old secret appears at times, the old misery of which no one knows, the profound wound always concealed. (33.)

Add to this my attacks of the nerves which are only involuntary declivities of ideas and images. (31.)

I have had a great deal of experience with neuroses. All treatment ordered in these conditions only makes the evil worse. I have never met a single physician intelligent in these things—no, not one. This is consoling. One must study himself scientifically and experiment as to what is the best thing to do. (50.)

When he told me that I had "a disease of the spinal cord, a softening of the brain," it made me laugh. 1853.

If I had had a sounder brain, I should not have made myself ill over reading law, and wearying myself. The vexation instead of staying in my head, passed into my limbs, and made them writhe with convulsions. It was a deviation. (31.)

In the last quotation we see an acuteness of observation and a soundness of judgment which no physician of that day could have equaled. There is a flashing glimpse into the physiology of epilepsy. If some of our modern epileptic specialists had either the desire or the ability to look at the disease in such a physiological and rational way, we should be much nearer a solution of the terrible problem. To the irritation of reading he ascribes the source of his ill—in a half-blind way, of course, and yet clearly, and his *deviation* is a good statement of the explanation of the storm of derouted reflex irritation submerging the lower centers.

In 1851, at the age of 30, when Flaubert's solicitude and fright as regards epilepsy had somewhat subsided, he wrote the following remarkable sentence:

The secret of everything which surprises you in me, dear friend, is in this part of my private life which no one knows. The single confidant which it had was interred four years ago.

Five years before this, and while he was still under the terrifying influence of the shock, he was compelled to go to Paris on some business connected with the death of his father. A medical attendant accompanied him every instant. His friend, Du Camp, says of him

during this visit, that he passed rapidly and without apparent cause from a state of excitement or exaltation to that of depression, that of normal health being almost unknown. He either walked so swiftly that his friends could not keep up with him, or he slept so soundly that it was almost impossible to awaken him.

This description appears to me to have a significance which is simply amazing. And it is quite as astonishing that a multitude of writers, medical and literary, have wholly neglected it. Writing four years previously he says that his "secret" was known to only one person who died "four years ago." There is but one explanation of these things, and of many such mysteries one need not recount, and especially of the character of *St. Anthony* of the "second style" or making, etc. There is no clinical explanation of all these facts, except upon the supposition that since the "earthquake" of 1843, Flaubert was constantly under the influence of opium. In 1853 Flaubert wrote that he had often heard his father credited with a comprehension or diagnosis of diseases without understanding the reasons whereby he reached his conclusions. One cannot be sure that Flaubert's mother did or did not also know the "secret". There is no reason why the world should not know it, and one may hope that documentary proof may sometime transform my theory into history. It certainly throws a flood of light into a hundred puzzling mysteries, and solves

many of the enigmas of his character, life, and literary workmanship in a most gratifying manner.

And especially as to the choice of subject, method of out-working, etc., of the morbid piece of literature, the second *Saint Anthony*, which he composed during the years preceding the journey to the Orient. A study of that book will make more clear Du Camp's correct observation, that "Flaubert's faults were especially the consequences of his nervous ailment, without which his talent, his habits, his character remain inexplicable."

"At the age of twenty," writes Du Camp, "Flaubert had an exceptional intellectual development; he was very peculiar, highly original, open to the world and appropriating everything with extraordinary rapidity. His reading had been extensive, and his memory was well stocked. He worked with ease, and he was naturally fruitful, like a good tree planted in fat soil and grafted with a master hand. * * * But now Flaubert stopped. He explained his loss of memory as due to the abuse of quinine with which he had been stuffed. His former large curiosity was stifled, he narrowed his field of action, and limited himself to the revery of the moment. For months he never read a journal, and would not allow anyone to speak of the external world. Real life was put out of his thought, and he seemed to float in a continuous dream from which he was aroused only with effort."

When the plan of an oriental journey had been agreed upon Flaubert delayed it until he should be able to complete the *Saint Anthony* upon which he

had been working with great zeal for several years. At last it was ready, and the decision as to the worth of the great enterprise was to be left to his two best friends. So sure was Flaubert of their opinion that before he began the reading to them he waved the pages above his head and cried out: "Now, if you do not howl with enthusiasm, nothing is capable of moving you." The patient friends listened in silence for four days, eight hours a day, thirty-two hours in all! What could the poor judges answer the eager questioner?

"Phrases, phrases, beautiful, expertly constructed, harmonious, often redundant, made of grandiose fancies and of peculiar metaphors—but only phrases, which might be mixed and transposed, without changing the book as a whole."

"Useless work! We could neither comprehend, nor guess whither it all tended, and in fact it arrived nowhere. Three years of labor without result! * * * We judged that the thing should be thrown into the fire and never spoken of again. Flaubert leaped up and uttered a cry of horror."

"You are perhaps right," he said to us: "by absorption in my subject I have been fascinated by it and have not seen clearly. I admit the faults you speak of, but they are inherent in my nature; what is the remedy?" The renunciation, we said, of such vague subjects, the renunciation of lyricism, and the choice of a subject in which lyricism will be ridiculous.

He often said to Du Camp: "I was diseased with the cancer of lyricism; you operated upon me. It was

high time, but I shrieked with the pain.”* Later Flaubert frankly confessed that in *Saint Anthony* he was “himself the Saint, and I forgot it.” And the Apostle of the objective in art voices piteously his fall in the mud of disappointment. In 1853 he writes:

“I feel more and more funereal. My novel gives me cold sweats; sixty-five pages in five months! Oh, the joyful times of *St. Anthony*, where are you? I then wrote with my whole being!” (32.)

“I know those masked balls of the imagination, back from which one returns with death in the heart, exhausted, tired out, having seen only falsity, and indulged only in follies.” (32.)

“*St. Anthony* was an experiment. It was a subject in which I was entirely free, as regards lyricism, movements, extravagances. I was writing according to my nature, and had only to go straight on. I shall never again find those recklessnesses of style such as I experienced during those eighteen months as I joyously chose the pearls of my necklace. I forgot but one thing, the cord.”

In one word, *The Temptation of St. Anthony* was a prolonged opium dream. His reason, the instrument of differentiation, precision and limitation, was in abeyance, was submerged in hypnotic paralysis, and his exuberant imagination was allowed unrestricted play in a realm of fancy, tradition, myth, and metaphys-

* This, be it noted, was the *St. Anthony* of the second overworking. If that of the third revision long after the “operation” is now recognized as so worthless, what must have been the quality of that of the “second style!”

ical moonshine. From this he returned to the common world, freed, at least in part, from the drug habit. He then seems to have acted upon the advice of his friend and chosen a subject in which lyricism would be both impossible and ridiculous. *Mme. Bovary* was the pattern and ideal of the "realistic novel." He had no creative ability, and so this work is a sort of microscopic photograph in which there is little of value except the polishing of language, perfection of phrase, and the consecration of style. The tremendous contrast between the exuberance of all that preceded *Bovary* and all the pitiful, petty misery that followed after *St. Anthony*, an irritating puzzle to his biographers and critics, did not escape the attention of Flaubert himself:

A bad week, work would not budge; I reached a point where I knew not what to say. Everything was nuances and refinements in which all was black, and it is impossible to make clear by words what is obscure in the thought. I have sketched, bungled, floundered about, groped. I may find myself at last. What a scamp is style! You have no idea of this worthless book. As much as I have been open-breasted in my other books, by so much have I in this thought to be tight-buttoned and to follow a straight geometric line:—no lyricism, no reflections, the author's personality not to be found. (31.)

There are in me, speaking in a literary sense, two distinct fellows, one who is smitten with *geulades*, lyricism, the eagle flight, all the sonorities of rhetoric and the summits of the idea; the other who fathoms and excavates truth to the extent of his ability, who arraigns the tiny fact as relentlessly as the great

one, who would make you realize almost *materially* the things he produces. (31.)

In my youth I had great belief in myself, superb leaps of the spirit, impetuosity in my whole being. I dreamed of love, of glory, of the beautiful. My heart was as large as the world, and I breathed all the winds of heaven. Then, little by little I hardened and shriveled up, worn out, withered. (36.)

There are times when I believe that I am wrong in trying to write a rational book, and not abandon myself to all the lyric extremes, violences, philosophies, fantastic eccentricities that come into my head. (30.)

Even at the age of 18 he correctly describes his natural proclivities:

I incline to facetiousness, to intemperance, to extravagances, the pell-mell of rummaging, without order, without style, etc. (18.)

And in the heart of the *Bovary* period his sighs are still heard:

I love the trenchant and demoniac geniuses; one does not accomplish great things without fanaticism. (32.)

Exuberance—that is what charms me. (34.)

But exuberance was impossible after the opium years of *Anthony*, and as creative ability had been denied the writer, there could remain only a wearying, ruinous, and impossible striving after perfection of style, elaboration of phrase, ending in a pessimism which is absolutely unrivaled.

Some one has said of Flaubert that “he had a sort of

impossibility of happiness", but that superficially cynical criticism needs to be placed over against the pathetic groan of the sufferer toward the end of his life:—*How is it possible to be not sick?* Much, indeed all, should be forgiven those who have much suffered. Early his pain began, it was, with few and short exceptions, continuous, and its ingravescence ended with an early death:

Why this happiness? What is it afflicts me? (18.)

A man sick half of the time, and so depressed the other half that he has neither the power nor the intellect to write even the most commonplace letters. (23.)

My nerves leave me little rest. (23.)

By dint of expanding itself to suffering, the soul attains to a prodigious capacity for it. (25.)

Men like me are sick in vain because they cannot die. (25.)

It is the road of death, and I want to live still to make three or four other books. (32.)

My weariness cannot be greater. (32.)

Laxatives, purgatives, derivatives, leeches, fever, diarrhea, three sleepless nights, outrageous stupidity of the bourgeois, etc., etc.,—such has been my week. (33.)

I am profoundly sick without any being knowing how. I cough, and spout continuously like a whale. Add a depression that is unconquerable. I am melancholic, etc. (47.)

My head is very much fatigued. It is useless for me to try to work; the thing will not go. Everything irritates and wounds me, and although I am able to control myself before people, I have found time to time fits of weeping in which it seems as if I should break down. And now I have an entirely new symptom—the approach of old age. (49.)

How tired I am! I would like to go away where I should hear nothing spoken of. (50.)

Flaubert was so irascible, biting, etc., that it seemed as if he must be attacked with the morbid irritability of all the nervous diseases in their germ. (*Goncourts.*) (51.)

What have I not endured for four months! I do not know what has been going on within me, but it is certain that I have been very sick. (52.)

In the depth of pain in every part of my old machine. (53.)

For six months I do not know what ails me, but I feel profoundly ill without being able to say in exactly what way. (54.)

Flaubert not here; sick in bed. (*Goncourts.*) (54.)

It grows worse and worse with me. I have no idea what is the matter, and no one knows. The word *neurosis* expresses a group of varied phenomena plus the ignorance of the physicians. I am advised to rest; but how? To take things easy, to avoid solitude, etc., all of which are impracticable. There is only one remedy—time. If, after a month's rest I do not feel better, I will try the remedy of Charles XII, and remain in bed for six months. (56.)

I am hurrying; I shake myself so as not to lose a minute. Even my bones are tired. (59.)

There are times when it is difficult for me even to lift a penholder. (59.)

The dependence of suffering upon use of the eyes is capitally illustrated in Flaubert's case. I might have made hundreds of excerpts besides the following:

I have no heart to work at anything whatever. You know that we all have strange moments of weariness; life is so heavy that even those for whom the burden is least weighty often sink beneath it. A week ago I laid aside historical studies—and

for what? I do not know. I have scarcely the heart to smoke, and I am filled with a great weariness. It is strange, for two weeks ago I was in the best of health. This change is perhaps the result of the kind of work I have been doing for some time. (17.)

I am not made to enjoy. (25.)

To think is to suffer. (25.)

Those excesses in the matter of work, which exhaust, and by reason of that fatigue which they entail, make you lose more time in the end than you have gained. (25.)

You must know that I am driven wild by writing; style, which is a thing that I take very much in earnest, agitates my nerves horribly. I vex myself, I prey on myself, there are days I am quite ill from it, when I am feverish at night. (25.)

Sometimes one rejoices hugely at success in composition, but this pleasure is bought at the cost of how much discouragement and bitterness? (25.)

You were sick; do not work to excess which exhausts you because of the weariness: you finally lose time which you thought to save. (25.)

I am harassed by my writing; style shakes my nerves horribly. (26.)

My writing does not put me in a normal state. * * * I am furiously tired; sometimes there is a doubled lassitude just as after dinner one wants to vomit. (26.)

From April, 1848, to May, 1849, there is a gap in the correspondence. At this time Flaubert was working hard at the *St. Anthony*, and his health had failed again. (*Tarver*.) (28.)

I left you with laughter in my mouth and gaiety in my heart, and now I am frightfully despairing. What a difference in three days! I know that my happiness left me in returning to Rouen, and taking up the work of each day, the life of minutiae, the writing table, etc. (29.)

For three months I have been writing every day from morning until evening. I am at my wits' end with the ceaseless irritation of the incessant impossibility of completing my task. (29.)

Who knows if I shall not become a cretin in four years! (30.)

For the seven or eight days in which I have been busy at these corrections my nerves have been terribly on edge; I hurry, and such work must be done slowly. (31.)

This book tortures me to such a degree that sometimes I become physically sick. For three weeks I often have pain sufficient to make me swoon. At other times I am oppressed, or come near vomiting. I think I should have hanged myself today had not my pride prevented. If I cannot finish *Bovary* in fifteen days I shall stop work indefinitely and until I find again the desire to write. I am too irritated, irritating, sullen, etc. (32.)

After great excitement from long-continued writing I have great pain in my knees, my back, and my head, lassitude, etc. (32.)

My head is afire; and because I have written too long—from noon until midnight. (32.)

I must love you or I could not write, because I am exhausted. I have an iron band about my head. I have written for twelve hours, etc. (32.)

How I suffer! It is a thing atrociously delicious to write and to torture oneself in this way. There is a mystery here which I do not understand. (32.)

To suffer and to think—are these the same thing? (32.)

The week has been bad; I have writhed with exhaustion and abundant disgust. This happens regularly when I have finished something and must go to work again. (32.)

I am overwhelmed. My brain dances in my head. From six o'clock yesterday evening until now, one o'clock, I have copied seventy-seven consecutive pages; it is brutalizing. I

have crushed the branches of my cervical vertebræ from bending my head too long. (32.)

Writing brutalizes me. I feel toward literature the hatred of powerlessness. (34.)

I cling to my chimera of style, which wears me out body and soul. (34)

Since Thursday I have been in a frightful state of weariness and weakness, the result of a paragraph which I could not finish. This book crushes me, and I use up the remainder of my youth in writing it. (35.)

I must have a herculean temperament to withstand the atrocious tortures to which my work condemns me. (36.)

The more expert I become in my art, the more this art becomes a torment. Imagination stands still and taste grows. (36.)

Few have suffered more than I for the sake of literature. (36.)

I work away stubbornly and then am unable to sleep for two days. At last I finish my unfinishable Chapter VII. (39.)

For a long time I have been training my nerves; sometimes they get angry, and then they disorder the whole machine. (40.)

My wretched book has exhausted even the marrow of my bones. I am used up. (43.)

I read your book for four and a half hours and then did not sleep that night, and I had the stomach trouble. You will cause much gastritis. What a frightful book! If I were not suffering so today I would write you a long letter. (44.)

I am working like thirty thousand niggers. * * * Some days I feel as if ground up. I can hardly stand, and intermitting suffocations stifle me. (47.)

It is always so when I set to work. Then I am wretched, wretched, wretched! But this time it is worse than ever before. (48.)

I have been much weakened all this week in which I have written nearly one page. (52.)

Strange things are taking place within me. My psychic weakness must have a secret origin. I feel old, discouraged, used up. Perhaps it is my work which makes me sick, for I have undertaken a senseless task. (54.)

For the last four months, in which I have endured infernal anguish, I have in all written four pages; and bad ones they are. My poor brain cannot withstand another such injury; this grows very clear to me. (54.)

Physical fatigue prevents me writing every day. (57.) 1878.

My furious labor brought on what Dr. Trelet calls *la folie lucide*. (57.)

Lest one should carelessly repeat the careless error that mental labor may produce suffering even with healthy eyes, it need only be recalled that that foolishness has long ago been outlived. There are a number of answers to the "brain-fag" philosopher. There are few eyes without some refractive error, and even with least, an immense amount of labor, may produce great suffering. In Flaubert's case the disproof is perfect, because he found his mind worked well and painlessly when he lay down and closed his eyes.

Then there is the striking fact that when he was walking or journeying, all pain, and even all pessimism, disappeared as if by magic:

My health, far from bettering, is worse, and I was compelled to consult Dr. Cloquet at Paris, who emphatically urged me to live in a warmer climate. I leave for Egypt in October. (27.)

He was not seasick, but for the eleven days of the

sea-voyage he ate, smoked, joked, and was genial, with his stories, wit, good spirits, etc. (28.)

I have become enormously fat in the East. (29.)

As to health it is excellent. We are all getting fat. (29.)

In Egypt he says:—What we need, in writing, is the soul of the matter, the idea of the thing. * * * All our learning—of what use is it? But the heart, the life, the sap? Whence to set out, and where to go? Oh, when I get back, I shall take up once more my old tranquil life at my writing table, etc. (29.)

Why was I so happy and healthy in Egypt? (32.)

Yesterday and today I slept like a drunken man all the afternoon. I had the feeling as one has after drinking six bottles of brandy. I was stupid and dazed. But this evening, after dieting all day, strength has returned and I have written almost in a breath a whole page of close psychologic reasoning. (32.)

After the journey to Trouville, he writes: What a volume I could make this evening if expression were as easy as thinking! (32.)

I advise you to travel and you say your health does not permit. But it is precisely for your health that you should change your life. (36.)

In Africa: I sleep like a stone, eat like an ogre, and drink like a sponge. You have never seen me while traveling—then everything goes well. (37.)

I have recovered from the frightful blow which *St. Anthony* gave me. I do not boast of not being a bit dizzy, but I am no longer sick. * * * Has there been some progress in me? From day to day I find myself more sensitive, more easily moved. (37.) (On his way back from the Orient.)

For five months I have been in a deplorable condition, and if I go on this way the work will not be ended in twenty years. I must positively take a journey in Africa. (37.)

It was high time. In the six months since returning from the Orient I have stifled. (37.)

My four weeks at Vichy were stupid, and I did nothing but sleep. Doubtless I needed it; it refreshed me. But my intellect is atrophied. (39.)

The excitement of bringing out *The Candidate* told severely on Flaubert's nerves, and he consulted a doctor, who recommended a Swiss town. (53.)

Did I tell you that I should go this summer and set up my nerves at St. Moritz? It is by the advice of Dr. Hardy, who calls me an hysterical old woman. (53.)

I shall soon spend a few weeks on the Righi to deneuropathize myself. (53.)

To Switzerland by my physician's orders. (53.)

At Kalt-Bad for 15 days, and bursting with ennui because I have brought no books or work with me. I am thinking of myself, and when one does this he will end by becoming really ill. (53.)

Righi, where I nearly died with ennui, did me much good. My troubles have lessened, and I am able to go upstairs like a young man. I shall now return and go at my novel, which will take me two or three years to complete. (53.)

As it is absolutely necessary for me to get out of this condition of agony, I shall in September go to Concarneau. (54.)

I have been at Concarneau for 15 days without being absurdly well. I am in a more calm condition. (54.)

Since I have tried hydrotherapy I find myself calmer and am going to work again without looking behind myself. (54.)

I have worked this winter in a most reckless way and reached Paris in an absolutely lamentable condition. I am a little better. (55.)

I am just back in the old house which I left last year, three-fourths dead with discouragement. Things are not indeed

superb, but they are perhaps tolerable. I am reequipped and I wish to write. (55.)

At first glance it might seem that Flaubert's complaints of ill-health, pessimism, etc., began too early in life to be caused by eyestrain, and that they arose in some precedent or more fundamental morbidity of his nature. "I cried too much in my youth to sing now; my voice is hoarse," says the young man of 25. We must not forget that as a child he was so preoccupied in his reading, read so long and so intensely, that he frequently fell over in a swoon. The boy of 10 wrote "tragedies," and when he was just 9 years old he writes to a boy friend:

I will send you some of my political liberal speeches. I will also send you some of my comedies. If you wish us to join writing, I will write comedy, and you shall write your dreams, and as there is a lady who comes to our house, and who always talks silly things to us, I will write them.

And at 13 years the true note is struck:

As for us, let us concern ourselves with art, with art that is greater than peoples, than crowns and kings, always there, floating on enthusiasm, with her heavenly diadem.

Observant and keen oculists have often noticed a common symptom in the stories of their patients. There are many ways of expressing it—"everything stops," they repeat; "while I am writing or reading, things stop," "I get blind spells," "I half lose myself,"

"I get dazed," "I seem stupid," "I can't see," "everything becomes blank," "I have to quit and go take a walk," "my mind won't work," "I sit like a fool," "things fade out," "I lose my place," "the letters blur up"—and a thousand such expressions. Carlyle would sit for hours staring at his paper in blank amazement and thoughtlessness. In the letters of nearly every great eyestrain sufferer we find this symptom constantly reappearing. It is illustrated with most striking insistence every day that Flaubert drove his balking eyes to their savage work. It begins as early as 18 and is clearly stated in a thousand passages I have not transcribed. The following are examples:

Formerly I thought, reflected, and wrote, good and bad thrown recklessly upon paper, so uncontrolled was my fervor; now I do not think, meditation has gone, and I write nothing. My thoughts are confused, I am incapable of any imaginative labor, and everything that I write is dry, painful, forced, and extracted with suffering. I began a recondite work a couple of months ago, and all I have done is absurd, without the least idea in it, and I had to stop. (18.)

The further I go the less capable I find myself of expressing the idea.

Two execrable days. It is impossible for me to write a line. How I have sworn, spoiled paper, stamped with rage.

I always am frightened when I go to write. In beginning a work, do you always experience a sort of religious terror, an apprehension in commencing the dream? (25.)

Sick, irritated, the prey a thousand times a day of an atrocious agony. It was not like this formerly. (25.)

Already my imagination dies down, my power weakens, and my phrase disgusts me, and if I keep what I write it is because I love to surround myself with memories just as I do not sell my old clothes. (25.)

If you knew all the invisible bands of inaction which are about my body, and all the fogs which obscure my brain! I often feel a deadly fatigue of ennui upon being compelled to do the simplest thing, and it is only by great efforts that I am able to seize a clear idea. My youth steeped me in a sort of opium of weariness for my whole life. I hate life. It is torment to eat, to dress myself, to stand up. I have felt it everywhere and in everything and throughout everything—at college, at Paris, Rouen, the Nile, on the voyage. (30.)

I must keep the most complete immobility of life in order to write. I think better lying on my back and with my eyes closed. (31.)

I assure you I have fear now (of madness), but in seating myself at the table to write to you, the sight of the white paper has calmed me. (31.)

At work the whole week on *Bovary*, mad at not being able to make any progress. (31.)

I do not know if it is the Springtime Season, but I am in a frightfully bad humor and my nerves are as irritable as wires. I am in a rage without knowing why. Perhaps it is all caused by my novel. It does not budge, will not go on; I am more weary than if I were rolling mountains. At times I almost break into tears. A superhuman will is demanded to write, and I am only a man. It seems occasionally as if I needed to sleep continuously for six months. I have written only 20 pages in a month, working at least seven hours a day, and the result of it, all is bitterness, inner humiliation, my only reliance the ferocity of an unconquerable fantasy: but I grow old, and life is short. (31.)

Sometimes my arm almost falls with weariness, and my head is lost in vagueness. I live a bitter life, without external pleasures and the only thing that keeps me up is a kind of continual raging, that weeps often because of powerlessness, but which never stops. I love my work with an unbridled and perverse zeal, like an ascetic. The haircloth scratches my body. Sometimes, when I find only inner vacuity, when expression is denied, when after long pages of scribbling I find I have not worked out a single phrase, I fall on my lounge and rest there, stupid and in a subjective desert of ennui. (31.)

I have succeeded in writing but one scene in four months. (32.)

For three days I have rolled among my furniture in attempting to find what to write. There are cruel moments in which the thread is broken and the reel unwound. * * * The end of my book is postponed, and it may prove the end of my own life. * * * Everything comes out of the head, and if that miscarries, it was at least good gymnastics. What is natural to me is unnatural to others, is extraordinary, fantastic, metaphysical howling, mythology. *St. Anthony* did not give me a quarter of the mental tension which *Bovary* causes. It was an outpouring; I had only pleasure in writing during the eighteen months of its composition. Its five hundred pages were the most profoundly voluptuous of my life. I now have to get within the skins of those antipathetic to me, and for six months I make platonic love while I am exalted as a Catholic at the call of the bells and want to go to the confessional. (32.)

My head whirls and my throat burns because I have hunted, chopped, dug, gone over again, rummaged, and howled, in a hundred thousand ways, a phrase which at last I have finished. (32.)

I am broken-hearted with weariness and humiliated with weakness. Ideas will not come; in vain I dig in my head, my heart,

and my senses, nothing anywhere. The whole day has passed thus and I have been unable to write a line, not even think a thought, or find any activity. Utter emptiness and void. (32.)

My head swims with stupidity, discouragement, and fatigue. I spent four hours without achieving a single sentence. Today I have not written a line. What atrocious labor, what exhaustion! O Art! Art! what is this mad chimera which eats the heart, and why? What a fool is one to give himself such suffering! (32.)

For four days I have had fever, and yesterday it was violent. (32.)

You do not know what it is to remain a whole day with your head in your two hands, trying to squeeze a word out of your wretched brain. (45.)

You understand nothing of my literary torment. I do not know how to go about it to write. (45.)

As for literature, I am incapable of any work. In about four months (during which I have been in hellish anxiety) I have written fourteen pages in all, and those bad ones. My poor brain will not stand such a blow. That seems to me quite clear. (54.)

In a strictly scientific and medical sense, we have here a capital example of what the physiologists call inhibition. A common function is blocked by some reflex which prevents its execution. A subconscious wisdom forefeels the hurt and shrinks from it. The sick lose the spur of action, even the desire for it. The wounded or weak animal feigns death; the hurt eyes notify the brain to stop, and the very effort required to overcome the strain checks mental activity and initiative. It is such a natural, common, and necessary

protective method that we have overlooked it. But what vast significance it has for the welfare of the individual literary worker, and for literature itself. It is extremely frequent that in this simple inhibition of thought due to eyestrain lies the entire question of the quality of "inspiration" and of "inspiration" itself. Whipping oneself into "a white heat", as Carlyle and others did, or developing the aphorism-style of Nietzsche, with its morbid vagueness, excess, and disjointedness, give an altogether diseased character to the literary work. There is, indeed, often tragedy to the worker and to his literary art in not having a normal and physiologically acting ocular mechanism. Of all truths none is truer than that healthy and happy brain-action often depends upon spectacles which give health and ease to ocular function. Forcing inspiration defeats its own object and results in sterility. In the heart of his *Bovary* period Flaubert ground up his soul in agony and fury to overcome this inhibition. He is said to have hunted for one desired word for three weeks. "How tormenting is my *Bovary*! I want to cry sometimes, so much do I feel my lack of power. But I'd rather die than play the juggler with it." And so he stamped and walked, howled, sang, and declaimed, like a madman day and night for thirty years to lash himself into a fury and overcome the inhibition effects of eyestrain. He could lie down, close his eyes, and his brain would work vividly, and

he could go on travels and his mind at once became a fireworks of abundant energy. But sit at his table and write—that he could not do. *St. Anthony* drew its inspiration, as I believe, from opium, and the awful pain of the undeception resulting from that error was never for a moment forgotten by Flaubert. Creative ability was denied him by nature, and if there was any that slipped through the fingers of the Fates, it was paralyzed by disease and fear, or exhaled into dream by the hypnotic. What was left? The labor of days over a sentence, the desolate and empty beauty of cadenced prose, the “filing of the line” until it was a line—geometrically speaking—that is, without breadth or thickness. At its best only esthetic mysticism could result, at its worst, pessimism relentlessly and logically intermixing, what Gautier called the *triste amour du laid*, “the pitiable love of the unlovely.” His own poor mother at last said to him, “The mania for phrases has dried up your heart.” His own self-judgment was that he had no interest in the external, in useful things. “I have bid practical life an irrevocable adieu.” Some of his rules of literary workmanship, or their consequences, are these:

The whole United States may perish rather than one principle. May I die like a dog rather than hurry a second the phrase which is not ripe.

His great principle now, was that the utmost weakness was to show one's personal feelings in the art work.

I have always forbidden myself to put anything of myself in my writings, but have nevertheless done so.

The idea exists only by virtue of its form.

The men of olden times had no diseases of the nerves such as I have.

Physically speaking, for my health's sake, I need to reinvigorate myself with good poetic phrases.

For fifteen long years I have labored like a mule. I have lived all my life in this maniacal obsession to the exclusion of my other passions, which I shut in cages and which I went to inspect occasionally to amuse myself.

If I have the power I have not the patience, and patience is everything.

What would be fine and desirable would be a book upon nothing at all, a book without exterior bonds, which would upbear itself by the internal force of its own style, like the earth without support in the air, a book almost without subject, or at least where the subject was almost invisible, if possible. The most beautiful works are those having the least of material; the more that expression comes near to being thought, the more the word adheres to it and disappears, and more beautiful it is. I believe the future of art is along this road.

Style is in itself and exclusively an absolute method of seeing things.

The moment a thing is true it is good.

Now what in the person, and in his art-work, and in his philosophy, was the conclusion of the whole matter? The latest and perhaps the best answer is, Zolaism. But the ideal is sought by thousands of other errant pseudoliterateurs that tell their wearisome story in every bookstall and "popular" magazine of

the day. It is, strangely enough, a result of diametrically opposed and opposing tendencies, disease being the father of both—"Art for art's sake," and "form," empty and contentless; or Zolaism—the formless search for "truth"—the latter day alias of mud and filth, shortly, the yellow newspaper. Both vicious bastards have for their father Flaubert's monotonously repetitive "Art has no morality," leaving the "artists" to be impaled on either horn of the dilemma. They usually succeeded in being doubly gored. Already Flaubert recognized the fact in himself when he said, "The basis of my character, whatever is said, is the mountebank;" and in the further statements:

I hate what it is agreed to call *realism*, although I am made one of its pontiffs.

When Zola shall give me the definition of the term *Naturalism*, I shall perhaps be a Naturalist. But until then I do not know what it means.

They would use Mount Olympus for a potato patch. (1846.)

"I am the last of the Church Fathers," he said a few years before his death.

Du Camp, in allusion to his friend, says that the restless search for the exquisite finally ends in all sensation becoming almost pain. So dissatisfied was Flaubert with his (the greatest Master's) most excessive and most perfect work in "style", that he wished to buy up all the copies of *Bovary* and suppress the publication. *Anthony* had proved a hypnosis dream,

Salamambo, "an orgy of antiquarian erudition." How was it with the method itself?

I have suppressed phrases at the end of five or six pages which have cost me the work of entire days.

Sometimes one realizes that he needs to make himself suffer, to hate his own flesh, to throw mud in his face, so hideous does it seem. Without the love of form I should perhaps have been a great mystic.

This book, which is only style, has for its constant danger style itself. The phrase intoxicates me, and I lose sight of the idea.

The deplorable mania of analysis exhausts me. I doubt everything, and even my doubt. You thought me young, and I am old.

As I approach mastery, the art of writing appears in itself more impracticable and I am more and more disgusted with anything I produce.

The plastic art of style is not as large as the entire idea, I well know, but whose the fault? Language; we have too many things and not enough forms, whence the torture of the conscientious. (1853.)

After all the struggle and the "success" there is the most pitiful failure: "*Form is only an error of sense and substance a fancy of your thought.*" A faint and far forefeeling of a greater truth is dimly seen in his saying:

The blood of the Middle Ages still pulses in the veins of humanity, and it pants for the mighty air of future centuries, which only bring it storms.

In the score of clinical biographies I have collected it is a rule, almost absolute, that the general pessimistic view of a writer depends accurately upon the persistence and intensity of the suffering from eye-strain, and the most extreme and maddest expressions come from a special day or hour of ocular and nervous injury. This rule is admirably illustrated in Flaubert's case. The Goncourts say that Flaubert told them that it was indignation alone that kept him alive. Over his own tomb might have been erected Goya's monument, a skeleton crawling out of the grave and scrawling on the wall, *Nothing*. I choose a few lines:

There is left only weariness during life, a tomb after death,
and rottenness for eternity. (18.)

Vice wearies me as much as virtue. (18.)

Let us spit on our heads, and then calmly continue our task.
(21.)

The modern weariness that gnaws a man's entrails and turns
an intelligent being into a walking shadow, a thinking apparition.
(24.)

Real griefs stay in my heart, bitter and hard; they crystallize
as they come. (25.)

There is no springtime in my heart.

If I had expected better things of life I should have cursed it.
(25.)

I have never seen a child without thinking it will become
aged, nor a cradle without seeing a grave. (25.)

You seem to be happy; that is sad. (25.)

The burden of great despair that nothing lightens. (25.)

I now see my maturity bordering on decay. (25.)

I have never had a sentiment that I have not tried to be done with it. (30.)

I mock at everything, even at those I love most. (31.)

I was born with a heap of vices which have never even looked out of the window. I love wine and do not drink. I am a gambler and have never touched a card. Debauchery attacks me, but I live like a monk. I am at bottom a mystic, but I have no faith. (31.)

Happiness is an invention of the devil in order to make the human race mad. (32.)

The love of humanity is as sorry a thing as the love of God. (32.)

If I ever achieve any success I shall greatly regret it. (32.)

Despair is my normal state. (36.)

What a city of the dead is the human heart. (36.)

Paganism, Christianity, Smuggery. These are the three great evolutions of humanity. It is not pleasant to find one's self in the least. (50.)

The odor of corpses disgusts me less than the miasm of egotism breathing from all mouths. (50.)

The mass, the number is always idiotic. (50.)

Do you know what is worse than all this? It is that one becomes habituated to it. (50.)

I will vomit upon my contemporaries the disgust with which they inspire me, even if I have to burst my breast to do it. (52.)

It seems to me I am traversing an endless solitude in order to go I do not know where. And I myself am the desert, the traveler, and the camel; all in one. (54.)

In the biographic clinics of private or of public patients, there is a constant repetition of the complaint of old age coming on prematurely, even in youth. Eye-strain suffering quickly etches in the face the indelible

lines of the waste of life in conquering the insuperable and Sisyphean task. It is indeed an ever-recurrent and never-renounced Cadmean victory. In Flaubert's case, it, of course, began early. His "innocencies", "simplicities", etc., disappeared in childhood, and his school days were miserable.

In my own eyes I seem immeasurably aged, older than an obelisk. (25.)

Alas, I am not as gay as formerly. I am growing old. I no longer have that magnificent *blague*, etc. (24.)

Ten years ago I was ruddy, all was perfume, and I exhaled life and love; now I see maturity near to withering. (25.)

For three days, although I work long (about ten hours a day), I am seized with an unparalleled sadness; I feel in my soul a mortal colic of bitterness. (25.)

Oh, how old I am growing, how old! (32.)

Sometimes I feel exhausted and tired to the marrow of my bones, and I think of death with longing as an end of all this anguish. (38.)

I have had hypochondria. Once at the height of my youthfulness I was thus seized for eighteen months, and I nearly succumbed. (38.)

I am submerged in a kind of black melancholy which appears with or without reason many times during the day. It passes and then it begins again. It is a long time since I have written. Nervous strength fails me. (49.)

As for myself, I am a used-up man; my brain will never again act normally. (49.)

His profound ennui, discouragement with everything, his wish for death, to be forever rid of his *moi*. (51.) (*Goncourts*.)

But I feel myself mortally wounded. To create a work of

art one must not be burdened with care, and this is not true of myself. I am neither Christian nor Stoic. I shall soon be fifty-four years old, and at this time of life one does not change his habits or remake his life. The future has no good to offer me, and the past horrifies me. * * * Old age and decadence. As to literature, I do not believe any more in myself. I find myself empty—a discovery with little consolation in it. (54.)

I am seized with fits of prostration, when I feel as if annihilated or about to explode. (55.)

As for myself, I consider myself done for. My brain will not recover itself. One cannot write when one has lost one's self-esteem. I only ask for one thing, that is, to die and be quiet. (59.)

And this of a man of splendid natural health and endowment of vitality, normally exuberant, expansive, and life-loving. As in others, here, too, the depression and abnormality proceeds almost to insanity. At the age of 19 Mme. Lugier told the Goncourts that she feared he would lose his mind. There is a lurid suggestiveness in the story of Flaubert, told by himself, in reference to a poor, hysterical, and weak-minded man who believed he had a tape-worm, and whose entire life and actions were dominated by the tyranny of this belief, so that it dictated his food, drink, his going and coming, etc. Flaubert was fascinated and ends the tale by, "I find it makes me giddy."

Louis Lambert of Balzac struck me like a thunderclap; it is the story of a man who became insane in thinking intangible things. This has stuck to me with a thousand hooks. (31.)

How close to insanity we sometimes feel ourselves, I especially. (31.)

After bordering on, "grazing" madness or suicide, I am now completely recovered. (49.)

In all the previous cases studied and in the vast majority of private patients suffering from eyestrain, the oculist finds an unconquerable driving and necessity of walking, journeying, hydropathizing, or some other form of eye-rest. In Flaubert's case there are illuminating and seemingly contradictory exceptions to the rule. But closely studied they not only "test", but they "prove" it. In the first place, Flaubert spent more time in travel and trips abroad than the "Monk of Croisset" is usually supposed to have done. There was the summer walking tour with Du Camp, and the two years' Oriental journeying; there was another trip to Africa, one to England, a coaching tour through several countries, many outings to Paris, etc. During these times there was a return of normality, happiness, gayety, while melancholy, pessimism, and ill-health disappeared in an instant, and until the day of the return and resumption of literary labor. Then sickness and horror began. It is true that while at his work in his room he was seemingly the worst of hygienic sinners as regards exercise. But thereby hangs a tale! The beginning of the habit of staying in his room and not exercising was naturally and surely the shock and fear of having epileptic seizures while outside of the

house. There was a reckless, ill-advised, but most determined resolve on that score. His mother had to torment him to make him walk in the garden. He never went beyond, he had no horse, no boat, etc. He would sit half a day in the same position. He worked at his literary task fourteen or fifteen hours every day, going to bed at 4 a.m., and often at it again as early as 9. This continued for some eighteen months. At the age of 32 he says he had not taken a walk or seen the country for two years. He finally came to contend that walking was hurtful to him or to anybody. He tried to "get even" with the still small voice by such outbursts as these:

Too much rowing, too much exercise! Yes, sir! The civilized man has not such a great need of locomotion as our friends, the doctors, insist. (57.)

I am now reading books on hygiene; how comical they are! What impertinence these physicians have! What asses, for the most part, they are! (53.)

I am reasonable. I go out every day. I take exercise and come back tired and even more stupid. This is what I get for it. (54.)

The overlooked solution of this sorry and puzzling contradiction is at hand: While at his work he walked, howled, stamped, declaimed, like a madman. Passers-by wondered and gossiped. This served a double purpose. It enabled him to get exercise of a sort, it is true, but real nevertheless, and it was his peculiar

and logical method of whipping himself into excitement, "white heat", that is, of overcoming the inhibition of mental action due to his eyestrain.

My chamber walls remember still my frightful oaths, the stampings of my feet, and my cries of distress which I vented alone. (24.)

It is very late, and I am tired. My throat is raw from having yelled all the evening in writing, according to my exaggerated habit. (32.)

Let no one say that I take no exercise, for I carry on so that sometimes I walk several leagues a day in composing. (32.)

I howl! I sweat! It is glorious! It is sometimes decidedly more than delirium. (34.)

Howling from morning until evening almost to break my breast. (38.)

In the silence of my workroom I indulge in such howlings and fury that one would think it was a horse galloping, neighing, and kicking. (39.)

There is scarcely one eyestrain sufferer that is not a victim of insomnia. When the morbid reflexes are resisted by the brain, when one organ is not too persistently or violently harmed, when the struggle for health is obstinate, and its regaining has not become impossible, then sleep is possible and some measure of refreshment is usually secured. Flaubert's case again illustrates the clinical truth:

I have been two days without accomplishing anything and I am very tired, worked out, most sleepy. (31.)

For too many nights I have gone to bed late, rarely before

three o'clock. It is a stupid way in which I exhaust myself, but I wished so much to be done with this novel. (32.)

I slept a good part of the afternoon, and took up my work again in the evening with great exhaustion. (32.)

I have the greatest need of sleep now for several days, and I prefer to lie completely fallow rather than half-work. (32.)

For two and one-half months my best night's sleep has been five hours. Finally, after three days, I slept my fill and am brutalized by it. (51.)

I sleep twelve hours a day; it rests my poor brain. (52.)

In the last eight days I have slept altogether ten hours. I keep up with cold water and coffee. (55.)

I have probably injured my brain severely, judging according to my sleep, because I sleep every night ten or twelve hours. Is it the beginning of softening? (56.)

That mysterious, protean, universal disease, called by the senseless name, "migraine," is surely 99 times out of 100 due to eyestrain, and just as certainly Flaubert was a lifelong sufferer from it. His naturally strong, and in all parts and organs equally strong, physique enabled his organismal wisdom to endure the assaults of the morbid reflexes upon each and every individual part with marvelous success. Only once, indeed, did one mechanism, the brain, fail to neutralize or cast off the ceaselessly incoming irritation or morbid reflex. But, thanks to its inherent vigor, and probably to opium, it was able to resist the epileptic storm, and the ship righted itself finally, and pursued its course. I shall briefly allude to some of the diseases which are

now more or less well recognized as the results of eyestrain, the effects of the derouted reflexes, seeking a denied outlet for their excesses and morbidities of innervation.

It is remarkable how often eyestrain patients complain of ever-recurring colds, coryza, grippe, etc., and how free they become with proper glasses. I have one patient who gets a violent cold or coryza whenever his glasses are so ill-adjusted as to bring his astigmatic axis five degrees out of precision. Many such cases could be epitomized. Flaubert suggests a similar story.

My cold has perhaps purged my head, for I feel better. (32.)

For three days extremely stupefied with a violent coryza. (34.)

Grippe has seized me, of the most violent kind, with diseases of the stomach. (37.)

My grippe appears to be lightening. (46.)

Frightful colds and grippe, for six weeks. (52.)

An abominable attack of grippe. I cough, I blow my nose, I spit, I sneeze continuously, and I have fever at night. (53.)

"Rheumatism" and "neuralgia", etc., are frequently only meaningless names for eyestrain. At 26, Flaubert had "rheumatism" in the neck.

I write you with great difficulty, because since yesterday I have an attack of rheumatism which gets worse every hour. I suffer enormously, and am most irritable. (31.)

My winter has been miserable. I have suffered from rheumatism and from violent neuralgia. (45)

I was sick all last week; my throat was in a frightful condition. (51.)

I have had to have one of my last molars pulled out. Besides, I have lumbago, and moreover blepharitis. (57.)

Flaubert suffered frequently from boils and skin affections, and still more from "toothache", of which there are bitter complaints throughout much of his life. In private practice there are occasional examples demonstrating that the eyes are the cause of such affections.

Apparently that no organ should be exempt from the morbid reflex, the ears (as sometimes happens) became abnormally sensitive, and sometimes the hearing was so peracute as to become a real torment. Flaubert tells one of his correspondents that he has heard people speaking in a low voice through closed doors thirty yards away.

As was to be expected, there are few and unimportant complaints of the eyes themselves. Photographs show these to have remained exceptionally clear and healthy. There are a few complaints of styes, blepharitis, etc., and just before death he says that his "eyes begin to grow weary, for I have abused them more than ever." This all in accord with recognized clinical experience. The more perfectly visual acuity and binocular vision are preserved, the more certainly the morbid reflex to the eyes is escaped, and the more certainly other organs must bear the brunt and the

hurt. The more the complaints as to the eyes, the better the general health.

The irritability and sensitiveness resulting from all the unhygienic conditions, overwork, and disease, were natural and necessary. It is an old and daily-repeated story:

If having sensitive nerves were enough to make a poet, I should be a greater poet than Shakespeare, than Homer. (31.)

Mother came in at ten to say good-night and I was so frightened that I shook with terror. * * * What a wretched machine is this body of ours, and all because a fellow was working at a phrase. (31.)

In order to write there must be the *impossibility* of being interrupted, even when I wish to be interrupted. (32.)

The bromide of potassium has calmed me. (54.)

Some writers and one of his physicians have charged Flaubert's excessive smoking as being the cause of some of his symptoms. He did smoke too much throughout his life. Once he speaks of having smoked fifteen pipes in one day. It is possible that his inflammation of the tongue in 1854 may have been caused by the habit. Flaubert did not believe in the story.

In what vices I should indulge if I did not write! The pipe and the pen are the two safeguards of my morality, a virtue which is dissipated in smoke by the two tubes. (32.)

We cannot tell; we know nothing about the effect of small doses of tobacco (in chewing and smoking)

habitually kept up for years. In an age when billions of money are expended in tobacco, the medical profession is, apparently, concerned not at all about this important drug-habit.

The two organs most commonly affected in eyestrain, the two almost constant symptoms of "migraine," are headache of some kind, and indigestion of any kind. As to headache, the "iron band about the head" is a symptom almost every day complained of in the oculist's office. Flaubert speaks of it, after writing twelve hours:

My mind is worse off—due to the leeches put on me yesterday, and which stretched my ears. (23.)

For several weeks I have had pain in my cerebellum so intense as to make me cry out, and Sunday the attacks began again. (32.)

Heavens! How my head aches! I must go to bed. My thumb is furrowed by the pen, and my neck wrenched. (32.)

Concerning the diseases of digestion, a great authority, a famous general physician, Professor Musser, of Philadelphia, has lately publicly asked:

Who has not seen the correction of errors of refraction relieve so-called "bilious attacks," periodical vomiting, anorexia, indigestion, and other gastric symptoms? The cure of grave organic (should be *functional*) ocular defects relieves similar gastric conditions. The subject is familiar to all.

With proper reverence for Dr. Musser, it must be said that neither is the subject "familiar to all," nor

is it scarcely ever acted upon. Every book on gastric and intestinal diseases, in the world, shows the utter, absolute and appalling unfamiliarity of "all," at least "all" the "experts." Poor Flaubert and all the rest of the Europeans could not suspect it, and at this present day they could not get a physician in all the continent to think of such an etiology nor of such a cure. This is how they suffered then, and still suffer:

After all, life is only a continual indigestion. (26.)

My viscera have been seen through my skin leaping and bounding. (31.)

All the evening I have had pain in my stomach and belly to make me faint if I were capable of fainting. I think it is indigestion. I have also great headache; I am exhausted. (32.)

All this time I have been physically ill, with atrocious stomach troubles. I have had to go to bed with cramps in all my extremities, with pains in the back of my head. (38.)

(Back at Croisset.) I have suffered greatly this autumn; I have had frightful stomach disease. (38.)

When I wrote *Bovary* I had the taste of arsenic in my mouth so much, and was so poisoned myself, that I had two attacks of indigestion that I twice vomited up all my dinner. (47.)

One of his biographers adds that there is no exaggeration in this as when Flaubert gave way to his feelings he repeatedly became literally and physically sick at his stomach. A better observation would have noticed that it was not a powerful imagination in sympathy with his heroine that caused the stomachal malady, but that it was simply old-fashioned sickheadache, "the

disease whose nature is unknown" (Osler), but which is always due to eyestrain.*

When I am not hungry the only thing I am able to eat is dry bread. The most indigestible things, such as green apples and lard, lessen my stomachal distress. And so on. A man without common sense cannot live according to the rules of common sense. (48.)

Flaubert, like thousands of others suffering from "migraine," was struck by the quick recovery, and the equally quick return of the disease:

One thinks himself cured at times, and then awakes to find greater suffering than ever.

To epitomize: Flaubert from boyhood to the day of his death was the victim of unrecognized eyestrain. His epilepsy, typical or atypical, his "hysteroneurasthenia," his "migraine," or whatever name be given his symptoms, was the glaring consequence of abuse or overuse of slightly astigmatic or otherwise ametropic eyes. The mental and moral shock of the discovery led to the morbid seclusion, and unhygienic life, but every indication points to a control of epileptic tendency by means of opium. The character of his *Saint Anthony* (second style) and the Paris episode of morbid

*How little Flaubert's stomach was an "irritable" or morbidly disposed organ is shown by the fact that in an eleven-day rough sea voyage he was not in the least seasick, but was the life of the whole company, full of joviality and wit.

activity alternating with morbid slumber, corroborate this view. Denied creative ability, Flaubert's mind took refuge thereafter in the perfection of phrase and style, and a vast school of so-called literature, morbid in itself, and inartistic to death, sprang from the diseased example. Flaubert's success in this endeavor was self-confessedly a failure. The life of unhygiene, of systemic, and varied disease, was partly offset by the violent "exercise" he habitually took in his study by means of howling, declaiming, stamping, walking, etc. The organismal wisdom thereby achieved three compensations: 1, ocular rest; 2, excitation of the emotions and mind to overcome the inhibition of eyestrain; 3, muscular exercise. The inhibition of normal cerebration due to his eyestrain is the second most striking fact both of his history and of his literary activity. For the rest, his diseases of the head and stomach, his colds, grippe, rheumatism, neuralgia, etc., were mostly and chiefly those now well recognized as exhibitions of "migraine," so-called, or more correctly called eyestrain. His pessimism was the inevitable result of eyestrain plus the incidental conditions described.

Swift, Nietzsche, and Flaubert! None indulged in more reckless and unhygienic abuse of their bodies than these. They did not scorn their duties to this heroic friend and servant, they were utterly unconscious of duties to it; none more certainly outraged

every common-sense rule of ocular hygiene; in none were the horrors of eyestrain more plainly manifest, in none its wrecking power on character, intellect, and will, more evident; and in none were the injustice and insults more patently avenged. And they were the world's arch pessimists and cynics, the three greatest haters of humanity which humanity can exhibit.

LAFCADIO HEARN.

CHAPTER VI.

LAFCADIO HEARN.

THE dependence, not only of the literary character and workmanship of a writer, but even his innermost psyche, upon vision, normal or abnormal, is a truth which has been dimly and falteringly felt by several writers. Hearn himself has written a leader on the subject. Concerning "Madame Bovary," and his friend Flaubert, Maxime Du Camp reflects some glintings of the truth. But these and others, lacking the requisite expert definiteness of knowledge, have failed to catch the satisfying and clear point of view. To illustrate I may quote the paragraph of Du Camp:

The literary procedure of Flaubert threw everybody off the track and even some of the experts. But it was a very simple matter; it was by the accumulation and the superposition of details that he arrived at power. It is the physiologic method, the method of the myopes who look at things one after the other, very exactly, and then describe them successively. The literature of imagination may be divided into two distinct schools, that of the myopes and that of the hyperopes. The myopes see minutely, study every line, finding each detail of importance because everything appears to them in isolation; about them is a sort of cloud in which is detached the object in exaggerated proportions. They have, as it were, a microscope in their eye

which enlarges everything. The description of Venice from the Campanile of St. Mark, that of Destitution in "Captain Fracasse," by Gautier are the capital results of myopic vision. The hyperopes, on the other hand, look at the ensemble, in which the details are lost, and form a kind of general harmony. The detail loses all significance, except perhaps they seek to bring it into relief as a work of art. . . . Besides, the myopes seek to portray sensations, while the hyperopes especially aim at analysis of the sentiments. If a hyperopic writer suddenly becomes myopic, his manner of thinking, and consequently of writing, at once is modified. What I call the school of the myopes, Gautier names the school of the rabids. He said to *Mèrimée*: "Your characters have no muscles," and *Mèrimée* answered "Yours have no draperies."

In this attempt to understand the morbid psychology of the ametropic writer there is a commendable groping after the truth, but there has recently been discovered a whole world and science of new optical truth that makes it of no use. Of no use, at least, except as directing attention to the fundamental fact that intellect and character, both normal and diseased, may depend upon disorders of the visual function. *Du Camp* had no conception of the nature of hyperopia, he had never heard of an optical trouble, astigmatism, which is a hundred times more important than hyperopia and myopia, and he wholly misses the effect of myopia upon the literary work. Probably he used the words of optics only as a vague promise to pay in the gold of scientific reality. No matter!

Flaubert was Hearn's literary deity; the technic of the two men was identical, and consisted of infinite pains with data, in phrase building, sentence making, and word choosing. With no writer was the filing of the line ever carried to higher perfection, than with both master and pupil; fortunately the younger had to make his living by his pen, and therefore he could not wreck himself upon the impossible task as did Flaubert. For nothing is more certain to ruin style and content, form so well as matter, than to make style and form the first consideration of a writer. Flaubert, the fashion-maker and supreme example of this school, came at last to recognize this truth, and wished he might buy up and destroy all the copies of "Madame Bovary," and he summed up the unattainableness of the ideal, as well as the resultant abysmal pessimism, when he said that: "Form is only an error of sense, and substance a fancy of your thought." His ever-repeated, "Art has no morality," "The moment a thing is true it is good," "Style is an absolute method of seeing things," "The idea exists only by virtue of its form," etc., led Flaubert and his thousand imitators into the quagmire which Zola, Wilde, Shaw, and decadent journalism generally, so admirably illustrate. That Hearn escaped from the bog is due to several interesting reasons, the chief being his poverty, which compelled him to write much, and his audience, which, being Anglo-Saxon (and therefore properly

and thoroughly cursed), would not buy the elegant pornography of Flaubert and the gentlemen who succeeded, or did not succeed, in the perfection of the worship and of the works of the master of them all. And then Hearn was himself at least half Anglo-Saxon, so that he shrank from perfection in the method.

But there is one consequence, common both to Flaubert and to Hearn, a most strange unity of result flowing from a seemingly opposed but really identical cause in the two men. I have elsewhere set forth the reasons for my belief that the secret of Flaubert's life, character, and literary art consisted in an inability to think and write at the same time. He was one of the most healthy and brilliant of men when he did not read or write, but his mind refused to act creatively whenever he wrote or read. From this resulted his epilepsy. Fathered by the fear of epilepsy, mothered by opium, and reared by unhygiene and eyestrain, came the miserable "St. Anthony" of the second overworking. In the failure of this pitiful work there was naught left except bottomless pessimism, the "cadenced phrase," and all the rest, called "Madame Bovary" and "art for art's sake."

There is a pathetic proof of the lesson doubly repeated in the lives of both Flaubert and Hearn. "St. Anthony" was rewritten three times, and each time the failures might be called, great, greater, greatest. There lies before me Hearn's manuscript translation

of the third revision of the work, in two large volumes, with a printed pamphlet of directions to the printer, an Introduction, etc.—a great labor assuredly on Hearn's part. No publisher could be found to give it to the world of English readers!

There never was a greater sufferer from eyestrain than Flaubert, whose eyes were strikingly beautiful, and seemingly of extraordinary perfection as optical instruments. From this fact flowed the entire tragedy of the man's life and of his life-work. His friend Du Camp says that had it not been for his disease he would have been, not a writer of great talent, but a man of genius. Hearn had the most defective eyesight, he was indeed nearly blind, but physically he never suffered a minute from this cause—and yet his choice of subjects and methods of literary workmanship, and every line he wrote, were dictated and ruled by his defect of vision. Opium, with the impossibility of writing and creating at the same time, dominated Flaubert's work and working, and the similar result was begot by Hearn's enormous monocular myopia. Flaubert's choice of subjects, as regards his essential character, was of the most extreme illogicality; his cadenced phrase and meticulous technic were also not the product of his character or of his freedom. In the Land of the Nowhere, Hearn was likewise compelled to reside, and it was necessarily a land of color and echo, not one of form. The suffering Frenchman emptied of inhabi-

tants or deimpersonalized his alien country, while the more healthy Anglo-Saxon peopled it with ghosts. "Have you ever experienced the historic shudder?" asked Flaubert. "I seek to give your ghost a ghostly shudder," said Hearn. Flaubert wrote:

The artist should be in his work, like God in creation, invisible and all-powerful; he should be felt everywhere and seen nowhere.

Art should be raised above personal affections and nervous susceptibilities. It is time to give it the perfection of the physical sciences by means of pitiless method.

And Hearn's first and most beloved "Avatar," and his most serious "St. Anthony"—works dealing with the mysteries and awesomeness of disembodied souls and ideals—"could not get themselves printed." Moreover in all that he afterwards published there are the haunting far-away, the soft concealing smile, and the unearthly memories of pain, the detached spirits of muted and transmuted dead emotions and denied yearnings, the formless colorings of half-invisible and evanishing dreams. His habit of not dating letters suggests the timelessness of his inner life.

Mutatis Mutandis in Camp's words about Flaubert may be repeated of Hearn:

"The affection which Gustave endured for the greater part of his life, had nothing shameful in it. It was a pathologic accident, like cancer or chorea; the sufferer is not responsible for the disease. To Flaubert's life this disease added difficulties without number, and against them he struggled, over them he

was victorious by his love of art, and his will to do right. This combat which was ceaseless, is to his eternal honor. His works demonstrate that he came out of it victorious, and it only increases his merit to place in clear light the story of his physical weaknesses, and how he had to defend himself against the revolts of matter. To be the writer that he was beneath the burden of such an evil is proof of a most uncommon force of soul, and of an exceptional intelligence. Of sound body, he was weakened; invalid that he was, he became and remains extraordinary. To injure his memory by not showing what he was would be a sentimental folly of which my affection for him cannot be guilty. More than strength is necessary for the halt if he win the race."

Moved by sympathy, and perhaps by the vaguest feeling that to Hearn's poor vision was partly at least due both his personal and literary characteristics, I early besought him to make use of scientific optical helps in order to see the world better, and to carry on his writing with greater ease, and with less danger to the little vision left him. He had but one eye and this was evidently enormously near-sighted. The other had been lost in youth. I found he had about 25 diopeters of myopia, to use the jargon of the oculist, and that consequently he knew little about the appearance of objects even a few feet away. In writing he was compelled to place the paper or pen-point about three inches from his eye. With the proper lens it was possible to give him vision of distant objects about one-third as clear as that of the normal eyes. For a minute my disappointment was equal to my surprise

when I found that he did not wish to see with even this wretched indistinctness, and that he would not think of using spectacles or eye-glasses. Later I found the reason for his action. He sometimes carried a little lens or monocle in his pocket, which somewhat bettered his vision, but in the several months he spent with me I saw him use it but once or twice and for an instant. I am almost sure that the reason for this preference for a world almost unseen, or seen only in colors, while form and outline were almost unknown, was never conscious with Hearn, although his mind was alert in detecting such psychologic solutions in others. In studying his writings this reason finally has become clear to me.

When one chooses an artistic calling, Fate usually, and to the artist, unconsciously, dictates the kind of art-work and the method of carrying it to realization. The blind do not choose to be painters, but musicians, the deaf do not think of music, though nothing prevents them from being good painters. The dumb would hardly become orators or singers, but they might also be sculptors or painters, or designers. It is as evident that the poet is largely a visualizer, if one may so designate this psychic function, and without sight of the world of reality and beauty, poetry will inevitably lack the charm of the real and the lovely. Every litterateur, in truth, shows more or less clearly that the spring and secret of his imagination lie preponderantly

in the exceptional endowment, training, or sensitiveness of one of the principal senses of sight, hearing, or touch. A thousand quotations might be made from each of a dozen great writers, to prove the thesis. But the man born blind cannot become a poet because true poetry must be conditioned upon things seen—"simple, sensuous, and passionate" demands the great critic; but interwoven and underrunning the simplicity, the passion, and the sense, is and must be the world as mirrored by the eye. All thinking, all intellectual activity, is by means of the image and the picture; all words are the product of the imaging and the very letters of the alphabet are conventionalized pictures.

Physiologically, or normally, the perfection of the artist and of his workmanship, thus depends upon the all-round perfection of his senses, the fulness of the materials and of his experience which these work on and in, and the logical and esthetic rightness of systematization. Conversely, a new pathology of genius is coming into view which shows the morbidizing of art and literature through disease, chiefly of the sense-organs of the artist and literary workman, but also by unnatural living, selfishness, sin, and the rest. Now in Hearn's case there was a sad conspiracy of the Fates which doubled and trebled his personal tragedy, and which gave to his art-work both in theme and in its embodiment or variations, its peculiarity,

its fault, and oddly enough, its almost unique excellence.

In the first place, there was never in his life any personal happiness, romance, poetry, or satisfactions which could serve as the material of Hearn's esthetic faculty. Almost every hour of his life had been lived in physical or mental anguish, denied desire, crushed yearnings, and unguided waywardness. Born of a Greek mother and a roving English father, his childhood was passed in an absurd French school where others might become a dwarfed and potted Chinese tree. Flung upon the alien world of the United States in youth, without self-knowledge, experience, or self-guiding power, he drank for years all the bitter medicines of poverty, banality, and the rest, which may not shatter the moral and mental health of strong and coarse natures. By nature and necessity shy beyond belief, none may imagine the poignant sufferings he endured, and how from it all at last he writhed to manhood and self-consciousness, preserved a weird yet real beauty of soul, a morbid, yet genuine, artist-power, a child-like and childish, yet most involuted and mysterious heart, a supple and subtle, yet illogical and contentless intellect.

The most striking evidence of the pathetic and unmatched endowment and experience is that while circumstance dictated that he should be romancer, no facts in his own life could be used as his material.

There had been no romance, no love, no happiness, no interesting personal data, upon which he could draw to give his imagination play, vividness, actuality, or even the semblance of reality. So sombre and tragic, moreover, had been his own living that the choice of his themes could only be of unhealthy, almost unnatural, import and coloring. He therefore chose to work over the imaginings of other writers, and perforce of morbid ones.

A glance at his library confirms the opinion. When Hearn left for Japan, he turned over to me several hundred volumes he had collected and which he did not wish to take with him. His most prized books he had had especially rebound in dainty morocco covers, and these, particularly, point to the already established taste, the yearning for the strange, the weird, and the ghost-like, the gathered and pressed exotic flowers of folk-lore, the banalities and morbidities of writers with unleashed imaginations, the love of antique religions and peoples, the mysteries of mystics, the descriptions of savage life and rites—all mixed with dictionaries, hand-books, systems of philosophy, etc.

Under the conditioning factor of his taste, it is true that his choice, or his *flair*, was unique and inerrant. He tracked his game with fatal accuracy to its lair. His literary sense was perfect, when he set it in action, and this is his unique merit. There has never been

a mind more infallibly sure to find the best in all literatures, the best of the kind he sought, and probably his translations of the stories from the French are as perfect as can be.

His second published volume, the "*Stray Leaves from Strange Literatures*" epitomizes and reilluminates this first period of his literary workmanship. The material, the *don*, is not his own, it is drawn from the fatal Orient, and tells of love, jealousy, hate, bitter and burning vengeance, and death, sudden and awful. Over it is the wondrous mystical glamour in which he, like his elder brother Coleridge, was so expert in sunsetting these dead days and deathless themes. His next book, *Some Chinese Ghosts*, was a reillustration of the same searching, finding, and illuminating.

That neither now nor afterward Hearn did not write out of his own experience, out of his own heart, and with its blood, was therefore due to the fact that life had denied him the needed experience; the personal materials, those that would interest the imaginative or imagining reader, did not exist. He must borrow, at first literally, which for him meant translation or retelling. The kind of things chosen was also dictated by the tragedy and pathos of his entire past life. But as if this pitiful tangling of the strands of Destiny were not enough, Fate added a knot of still more controlling misfortune. His adult life was passed without the poet's most necessary help of good vision. Indeed

he had such extremely poor vision that one might say it was but a fraction of the normal. A most hazy blur of colors was all he perceived of objects beyond a few feet away. There was left for him the memory of a world of forms as seen in his childhood, but that fact throws into relief the fact that it was a memory. It needs little psychology acumen to realize how inaccurate would be our memories of trees, landscapes, mountains, oceans, cities, and the rest, seen only thirty years ago. How unsatisfying, how unreliable, especially for artistic purposes, must such memories be! To be sure these haunting and dim recollections were, or might have been, helped out a little by pictures and photographs studied at the distance of three inches from the eye. The pathos of this, however, is increased by the fact that Hearn cared nothing for such photographs, etchings, engravings, etc. I never saw him look at one with attention or interest. Paintings, water-colors, etc., were as useless to him as the natural views themselves.

Another way that he might have supplemented his infirmity was by means of his monocle, but he made little use of this poor device, because he instinctively recognized that it aided so meagrely. One cannot be sure how consciously he refused the help, or knew the reasons for his refusal. At best it could give him only a fraction of the accurate knowledge which our eyes give us of distant objects, and not even his sensi-

tive mind could know that it minimized the objects thus seen, and almost turned them into a caricature microscopic smallness, like that produced when we look through the large end of an opera glass. What would we think of the world if we carried before our eyes an opera glass thus inverted? Would not a second's use be as foolish as if worn continuously? There was an optical and sensible reason for his refusal. With the subtle wisdom of the unconscious he refused to see plainly, because his successful work, his unique function lay in the requickening of ancient sorrows, and of lost, aimless, and errant souls. He supplemented the deficiencies of vision with a vivid imagination, a perfect memory, and with the sense of touch, which gave some sense of solidity and content, and by hearing that echolike, emphasized unreality, but his world was essentially a two-dimensional one. To add a *comble* to his ocular misfortunes he had but one eye, and therefore he had no stereoscopic vision, and hence almost no perception of solidity, thickness, or content, except such as was gained by the sense of touch, memory, judgment, etc. The little glimpse of stereoscopic qualities was made impossible by the fact of his enormous myopia, and further by the comparative blindness for objects beyond a few inches or a few feet away from his eye. The small ball becomes flat when brought sufficiently near the eye. Practically the world beyond a few feet was not a three-dimensional

one; it was colored it is true, and bewilderingly so, but it was formless and flat, without much thickness or solidity, and almost without perspective.*

Intellect, one must repeat, is largely, almost entirely, the product of vision and especially the esthetic part of intellect. And intellect, it should not be forgotten, is "desiccated emotion;" which brings us up sharply before the question of the effect upon esthetic and general feeling, upon the soft swirl and lift and flitting rush of the emotional nature in a psyche so sensitive and aerial as that of Hearn. In this rare ether one loses the significances of words, and the limitations of logic, but it may not be doubted that in the large, the summarized effect of 30 years of two-dimensional seeing and living, of a flat, formless, colored world upon the immeasurably quick, sensitive plate of Hearn's mind, was—well, it was what it was!

And who can describe that mind! Clearly and patently, it was a mind without creative ability, spring, or the desire for it. It was a mind improcreant by inheritance and by education, by necessity and by training, by poverty, internal and external. To enable its master to live it must write, and, as was pitifully evident, if it could not write in obedience to a creative instinct, it must do the next best thing. This

* I had gathered, but must omit, a hundred illuminating quotations from Hearn's writings illustrating the truth of the formlessness and nonobjectivity of his world, and how color dominated his poorly-seen universe.

residual second was to describe the external world, or at least so much of the externals of all worlds, physical, biological, or social, as romance or common sense demanded to make the writing vivid, accurate, and bodied. Any good literature, especially the poetic, must be based on reality, must at least incidentally have its running obligato of reality. For literature, again emphasized, vision is the intermediary, the broad, bright highway to fact. Prosaicly, local color requires the local seer. Barred out from this divine roadway to and through the actual universe, the foiled mind of Hearn could choose but one course: to regarment, transform, and color the world, devised and transmitted by others, and reversing the old, *The Logos become Flesh*, rewrite the history of the soul as, *The Flesh become the Logos*, for, in Hearn's alembic the solidest of flesh was "melted" and escaped in ecstatic clouds of spirit; it was indeed often so disembodied and freed that one is lost in wonder at the mere vision of the cloudland so eerie, so silent, so void, so invisibly far, and fading ever still farther away. But chained to the *here*, Hearn could not march on the bright road. He could never even see the road, or its ending. If freed to go, *there* became *here* with the intolerable limitation of his vision, the peculiarity of his unvision. The world, the world of the *there* must be brought to him, and in the bringing it became the *here*. In the process, distant motion or action became dead,

silent, and immobile being; distance was transformed to presence, and an intimacy of presence which at one blow destroyed scene, setting, and illumination. For, except to passionate love, nearness and touch is not poetical or transfiguring, and to Hearn love never could come, leastwise never did come. Except in boyhood he never, with any accuracy of expression or life, saw a human face; at the best he saw faces only in the frozen photographs, and these interested him little.

With creative instinct or ability denied, with the poet's craving for open-eyed knowing, and with the poet's necessity of realizing the world out there, Hearn, baldly stated, was forced to become the poet of myopia. His groping mind was compelled to rest satisfied with the world of distance and reality transported by the magic carpet to the door of his imagination and fancy. There in a flash it was melted to formless spirit, recombined to soul and given the semblance of a thin reincarnation, fashioned, refashioned, colored, recolored. There, lo, that incomparable wonder of art, the haunting, magical essence of reality, the quivering, elusive protean ghost of the tragedy of dead pain, the smile of a lost universe murmuring *non dolet* while it dies struck by the hand of the beloved murderer.

For with Hearn's lack of creative ability, married to his inexperience of happiness, he could but choose the darksome, the tragical element of life, the pathos

even of religion, as his themes. His intellect being a reflecting, or at best a recombining and coloring faculty, his datum must be sought without and it must be brought to him; his joyless and even his tragic experience compelled him to cull from the mingled sad and bright only the pathetic or pessimistic subjects; his physical and optical imprisonment forbade that objectivation and distant embodiment which stamps an art work with the seal of reality and makes it stand there wholly nonexcusing, or furnishing itself as its own excuse for being. True art must have the warp of materiality, interwoven with the woof of life, or else the coloration and designs of the imagination cannot avail to dower it with immortality.

Working within the sad limits his Fates had set, Hearn performed wonders. None has made tragedy so soft and gentle, none has rendered suffering more beautiful, none has dissolved disappointment into such painless grief, none has blunted the hurt of mortality with such a delightful anesthesia, and by none has death and hopelessness been more deftly figured in the guise of a desirable Nirvana. The doing of this was almost a unique doing, and the manner of it was assuredly unique, and constitutes Hearn's claim to an artist's immortality. He would have made no claim, it is true, to this, or to any other endless existence, but we who read would be too indiscriminating, would be losers, ingrates, if we did not cherish

the lovely gift he brings to us so shyly. Restricted and confined as was his garden, he grew in it exotic flowers of unearthly but imperishable beauty. One will not find elsewhere an equal craftsmanship in bringing into words and vision the intangible, the fair fine elusive fancy, the ghosts of vanished hearts and hopes. Under his magic touch unseen spirit almost reappears with the veiling of materiality, and behind the grim and grinning deathshroud a supplanting smile of kindness invites pity, if not a friendly whisper.

As to literary aim, Hearn distinctly and repeatedly confessed to me that his ideal was, in his own words, to give his reader "a ghostly shudder," a sense of the closeness of the unseen about us, as if eyes we saw not were watching us, as if long dead spirits and weird powers were haunting the very air about our ears, were sitting hid in our heart of hearts. It was a pleasing task to him to make us hear the moans and croonings of disincarnate griefs and old pulseless pains, begging piteously, but always softly, gently, for our love and comforting. But it should not be unrecognized that no allurements of his art can hide from view the deeper pathos of a horrid and iron fatalism which moves the worlds of nature or of life, throttles freedom, steels the heart, ices the emotions and dictates the essential automatonism of our own and of these sad dead millions which crowd the dimly seen sketches of Hearn's making.

It may be added, that, accepting the command of his destiny, Hearn consciously formed an ideal to which he worked, and even labored at the technic of its realization. I have talked with him upon these and similar subjects for many long hours, or got him to talk with me. The conversations were usually at night, beneath trees, with the moonlight shimmering through, and giving that dim, mystic light which is not light, so well suited to such a poet and to his favorite subjects.

As to technic there was never an artist more patient and persistent than he to clothe his thought in its perfect garment of words. Sometimes he would be able to write with comparative ease a large number of sheets (of *yellow* paper—he could write on no other) in a day. At other times the words did not suit or fit, and he would rewrite a few pages scores of times. Once I knew him to labor over six lines an entire day, and then stop weary and unsatisfied. I had to supply a large waste-basket and have often wished I had kept for comparison and a lesson in practical esthetics the half bushel or more of wasted sheets thrown away nearly every day.

That Hearn was a true poet none will deny, but it was one of the frequent seeming illogicalities of his character that he had no love of metric or rhymed poetry. I doubt if there is a single volume of such poetry in his library, and I never heard him repeat

a line or stanza, and never knew him to read a page of what is called poetry. I suspect the simple reason was that his necessities compelled him rigidly to exclude everything from his world of thought which did not offer materials for the remunerating public. He had to make a living, and whence tomorrow's income should come was always of vital concern. Poetry of the metric and rhymed sort does not make bread and butter, hence there was no time to consider even the possibility or the pleasure that might come from "cultivating the muses on a little oatmeal."

I sought once to make Hearn choose a modern subject and to treat it objectively, hoping that his exquisite literary art might overcome the obstinacy of his material, and bring him perhaps a cruder but a more needed and better recompensing audience. It was a sorry blunder on my part. "Karma" failed utterly to excite interest in the modern story reader. It is useless to fight against a watchful fate.

In another matter I was right and Hearn wrong. When I came to know him intimately, and understood how entirely peculiar and exceptional, in the ways I have suggested, was his genius, the thought grew more and more intense in my mind that he must go to Japan. He had worked out the West Indian vein, and there was nothing in our American life to inspire him. His clear-cut duty and function was to interpret primitive, alien, and far-removed life to our Occidental

minds. In all the world was no people so capably adapted to give him both data and inspiration, as the Japanese. Poetry, pathos, gentleness, Buddhism (his own Nirvana religion), and a whole universe of weird. reverberant myth, folk-lore, tradition, lay awaiting the magic touch of a worthy translator. Hearn seemed in every aptitude of his being, and every day of his training to be made for this superb work. Against his wish I forced the thought upon him, and against his will I almost drove him to undertake the journey. I felt it was destiny, and certainly his destiny. He began the journey, but at first got only so far as New York, whence he wrote back to me:

The last tentacle has been pulled out: The result I await with indifference. So frightful it all is that nothing could be worse—and the sweet consciousness comes that existence is impermanent. I therefore dream Buddhist dreams in this hurricane of steel and stone and steam—my new soul shining calmly as an electric light (visible to myself only) through the tempest.

Dear Gooley, your advice is good from your way of looking at it; but I am much stronger in New York than you imagine, and my future in it is plain and perfect sailing if I keep good health. I am only embarrassed for the moment. I am quite a lion here, and could figure in a way you would hardly guess; if I were not such a man of tentacles. I am not afraid of the cold—though it disheartens fancy a little; but I shall leave fancy alone for awhile. No, Gooley—dear Gooley, I shall make my way in New York—don't be afraid for me.

He soon became convinced I was right and finally

resumed the journey unwillingly. The end has justified the means and the sacrifice. It is plain that the Japanese period and work crowns his life labors splendidly and that his masterful pictures of Japanese character, traditions, and religion, now constitute one of our most precious literary treasures. They have also been of profound service to Japan.

It is true that Hearn has ignored, necessarily and wisely ignored, the objective and material side of Japanese existence. Mechanics, nationalism, economy, the materialism of his material, had obviously to be untouched in his interpretation, or in his *Interpretation*. It would have been absurd for him to have attempted any presentation or valuable phasing of this important aspect. That for him was in a double sense *ultra vires*. Such work will not want for experts. But what Hearn has done was almost wholly impossible to any other. His personal heredity, history, and physiology, highly exceptional, seem to have conspired to outfit him for this remarkable task.

There is still another reason, at first sight a contradicting one, for both Hearn's fitness and his success in giving us a literary incarnation of the spirit or soul of Japan in the subjective sense:—to his readers it must have appeared an insoluble enigma why this superlatively subjective and psychical "sensitive" should have been such an unrecking, outré, and enthusiastic follower of Herbert Spencer's philosophy,

or that part of it given in the "First Principles." It is told of an English wit that when asked if he was willing to subscribe to the 39 Articles, promptly replied, "O, yes, forty of them if you wish." Hearn was similarly minded—minus the fun—and most unphilosophically—he went into utter captivity, seemingly, to the unphilosophic philosopher. And yet the spirit of Spencer's *First Principles* was in reality as different from that of Hearn as was the spirit of St. Francis from that, for instance, of Cecil Rhodes. The contradiction and ludicrousness of this mismating is so easy of explanation that the incongruity is missed. The forest is not seen because of the trees. Hearn had neither true scientific instinct, animus, or ability. Neither had Herbert Spencer—so far as his *First Principles* are concerned, (and as regards an improved inductive method as shown in the *Psychology*, *Biology*, etc., I doubt if Hearn had much interest in these later works of Spencer). The clear and well drilled scientific intellect consents that if Spencer had not published his *First Principles*, and instead if he had gathered the facts of his later works before publishing an epitomizing *Last Principles*, the matter would have been as differently phased as night and day. Spencer cared infinitely more for the systematization than he did for the facts systemized. Reduced to its last analysis, the *First Principles* was the reverse of a close induction from the facts of nature and life. It presented the

glitter of generalization without the logic. The reverberating echoes of its illogic, sweeping sonorously over the universe with an indiscriminant ignoring of the world-wide difference between matter and life, caught the fancy of the imprisoned poet soul; he thoughtfully yielded an homage, which, from his standpoint, was unjustified, and which objectively was an unscrutinizing lip-service. Subjectively Spencerism gave Hearn warrant for an inborn atheism and materialism, which had been heightened immoderately by the bitter teachings of experience into a pessimism so horrid that one shuddered when looking into the man's soul depth. *Morne* was a favorite word with Hearn, and Spencer's was a fateful philosophy for one whose birth and education was desolation, and whose sight of the world was more than morne, was the abomination of desolation, was in truth the sheer awfulness of despair. Blindness were vastly preferable to Hearn's affliction, but if that splendid poet, St. Francis, had been so cursed, his face and his soul would have been ecstatic with smiles, with joy, with faith, with hope, and with love. So strange is the unaccountable allotment of Fate in her endowments, gifts, and orderings. There is, and there can be no blame—only a pity wholly beyond expression.

The aloofness, far-awayness, the inaccessible distance and detachment of Hearn's spirit is one of the characteristics felt in reading his best pages. Every-

thing is infinitely beyond our senses. To him everything was distant, the near was far, the far was at infinity. He thus truly became the poet of the *au delà*. His voice, itself an echo, comes to us as from the hush of an eerie height above the beat and wreck of the waves of our noisy shore. His personality as revealed in his writings is an echo, a memory, almost the memory of a memory, the thrill of the day dream of a soul retreating from sense.

Each day the quiet grew more still
Within his soul, more shrank the will
Beyond the jar of sense, serene,
Behind the hurt of world or ill,
Where sleep hushed silences unseen.

He ever insists on a haunting glimpse of the pain and the renunciation of others, of wasted and long dead faces and loves, always shrinking from our gaze, pallid in the darkling light of the setting moon, of vanishing loves, grievous story, forgotten myth, and ruined religion.

I have three photographs of Hearn, the first taken about twenty-five years ago, the second eighteen years ago, and the third, by Mr. Gutekunst, at my urgent solicitation in 1889, while he was stopping at my house. The first gives an almost necessarily false impression because of the purely anatomic condition of an abnormally large and protruding eye, which produced an expression of intensity and interest which

was not present in the face. This seeming intensity and far-lookingness has misled a recent Japanese writer into a natural but regrettable misinterpretation. Apart from the eye, had his pictures (made in profile of course, always) been made of the left side of his face, they would have shown the habitual sadness and lack of vivacity in his physiognomy. In the second photograph, made in Martinique, this stamping is brought out better. In my picture (the third) of 1889, I was unable, despite all effort, to get Hearn to present to the camera his entire face with naturally open eyes, and the customary expression. Hearn resolutely refused, and consented to the compromise of a two-third view *with closed eyes*. And this to me is still the most truthful, and hence the most expressive of all his photographs. It is so significant because of its negations, so expressive because nonexpressive. But it indicates, silently and by inference, the most significant fact about the man.

To those who are expert in such things the stare of the highly myopic eye is known to be not that of mental action and seeing, but of not seeing. When we walk we are forward-looking beings, and what goes on within the eye or brain, and what may be behind us is totally ignored. But for a highly myopic person there is no outward or forward looking. Hearn's closed eye gives, therefore, a much more truthful lesson in physiognomy than the open, surely than the protruding one which does not see the coming or future scene, or

which sees it so vaguely that its hint of the scene is perhaps more useless than the imagined picture of the totally blind. His inability to see the presenting world had resulted in a renunciation of outlook and an absolute incuriosity as to the future. With weaklings this might have resulted in introspection, the mental eye—the product of the physical eye—turned in upon itself. Hearn was too much of an artist to fall into that Death Valley of all esthetics, and there was a quick acceptance of the logical and inevitable, and there arose the wonder of poetic retrospection. As a painter, almost the sole color of his palette was mummy brown, the powdered flesh of the ancient dead holding in resolution their griefs, their hopes, their loves, their yearnings for the Infinite, for God and happiness, yearnings which he found to sink always to pulselessness, and to end in eternal defeat! But the pallor and sadness for the brief moment of their resuscitation was divinely softened and atoningly beautified. Then they disappeared again in the waste and gloom from which love and poesy had evoked them.

Felled in the struggle and defeat of the eternal battle with death, the vegetation of untold ages long ago drifted to an amorphous stratum of undistinguishable millionfold corpses. Compression, deferred combustion, and overshadowing, transmuted and preserved it for a long after-coming time, for our warming, lighting, and delighting. This has a perfect

analogy in the history and use of tradition, myth, folk-lore, custom, and religion, those symbolic and concrete epitomes of man's long ancestral growths and strivings, those true black diamonds of humanity's experiences, its successes and failures, of its ideals and disappointments. Hearn's artistry consisted in catching up these gems, these extinguished souls washed from a world of graves to the threshold of his miracle-working imagination, and in making them flush for an instant with the semblance of life upon his canvas; with what exquisite skill and grace he was able to concentrate upon them the soft light-rays of a fancy as subtle and beautifying as has been given to mortal!

BERLIOZ.

CHAPTER VII.

BERLIOZ.*

It is remarkable that a review of the ill-health of many great literary workers shows the same or very similar clinical histories. With slight variations and individual differences there appear throughout their lives complaints, almost identical, of neuralgia, headache, gastralgia, and other digestional affections, coupled with insomnia, nameless suffering, great depression, pessimism, bitterness, and even suicidal aberration. The fact might long ago have led some astute and observant clinician to add a distinct type of disease to our nosology. The unobservant have prattled of brain-fag, neurasthenia, and the like, when the symptom-complex of a peculiar and differentiated *Morbus Literati*, or *Scrivener's Evil*, was evident.

The case of Berlioz is another striking illustration of this general truth. In reading his letters and autobiography one must guard against his possible tendency to exaggerate somewhat the anguish of his afflictions, and especially, as physicians, we must discriminate and exclude from consideration those troubles which

* *St. Louis Medical Review*, December 23, 30, 1905.

came directly from his lively fancy, his love affairs, etc., in contradistinction to those arising in genuinely morbid physiologic or neurologic mechanisms. Berlioz was not a great student during his boyhood and youth, but when he came to studying medicine, writing music, and composing newspaper articles, his troubles began; they increased up to the end of his life. Omitting the large number as repetitive and wearying, I choose a few citations to illustrate the general fact of his persistent and increasing suffering:

Berlioz was born in 1803.* In his twenty-fourth year he was already afflicted with insomnia, and Chopin and Liszt once spent a whole night hunting for him in the fields, about Paris.

"In his youth he sometimes amused himself by deliberately starving, in order to know what evil genius could surmount; later on his stomach had to pay for these expensive fantasies" (Bertrand). Another equally silly philosophy of his disease is made by his biographer, Boult, who says of Berlioz: "He passes lightly over the privations and semistarvation that undoubtedly laid the foundations of that internal disease which embittered his later years."

Yesterday I was so ill that I could not crawl. (26.)

Suffering from your teeth; if it is likely to be any consolation to you, I can tell you that I am very nearly in the same state,

*The numbers following the excerpts indicate his age at the time they were written.

and last month I suffered from the agonies of the damned! I tried several spirituous waters. (27.)

Alas! I have another ill of which, apparently, nothing will cure me except a specific against life. (27.)

I was boiling over with impatience at not being able to leave my bed. At last, at the end of the sixth day, I felt a little better. (35.)

A stupid stay at Grenoble, passing half my time ill in bed. (38.)

A violent pain (not a mental pain, so look for no romance; only a very prosaic pain in the side), which forced me to stop at Nancy, where I thought I should have died. (43.)

My neurosis grows and has now settled in the head; sometimes I stagger like a drunken man and dare not go out alone. (53.)

These obstinate sufferings enervate me, brutalize me; I become more and more like an animal. (52.)

Indifferent to everything, or almost everything. (54.)

I am very ill without being able to discover what is the matter with me. (53.)

Horribly ill for two days at Courtavenal. (56.)

Ill as I am, I have still strength enough to rejoice greatly when I hear from you. (56.)

How is your health? As for me, I go up and down in the sad scale, but still I go forward. (57.)

I, too, think my disease is wearing itself out. I am certainly better since I gave up remedies. (57.)

I am no longer running after fortune, but awaiting it in bed. (58.)

I am worse than usual today, and have not strength to begin my article. (58.)

I am so ill today that I have no strength to write any more. (58.)

I suffer martyrdom every day now, from 4 a. m. till 4 p. m. What is to become of me? (59.)

My friends were delighted, but I was quite unmoved, for it was one of my days of excruciating pain and nothing seemed to matter.

Today, I am better and can enjoy their congratulations. (59.)

The effort I had to make to get up this morning brought on an attack of sickness. I am better now. (59.)

I witnessed it all in a state of complete insensibility; it was one of my days of suffering, and everything was a matter of indifference to me. I am better today. (60.)

I have been ill for fifteen days. (60.)

I have come back very tired and in great suffering. I am only going to send you a line or two, and then I shall retire to bed until six o'clock. (60.)

I have been in bed for twenty-two days. (60.)

My God, how I suffer! And I have not time even for that. (60.)

I am still an invalid. (60.)

I am invariably ill one day out of every two. However, for the last few days I do not seem to have suffered so acutely. (61.)

I have been confined to my bed again for the last nine days, and am taking advantage of a moment when I am comparatively free from suffering to write and thank you for your letter. (61.)

I have been wanting to answer you for several days past, but I have not been able; I have been in too great pain. I have spent five days in bed, incapable of an idea, and vainly summoning sleep to my aid. I am rather better today. (62.)

Your note reached me this morning while I was in the midst of one of my paroxysms of pain which nothing can charm away. I am writing in bed between the intervals of rubbing myself. (62.)

I am so weakened and stupefied by my sufferings. (62.)

A martyr to all kinds of pain tonight, but my regret at being unable to go and hear you is not the least of my misfortunes. I am in bed. (62.)

Will you believe that since I have taken to music again my pains have departed? (63.)

I got up today at four o'clock, having been compelled to lie in bed since yesterday. I was past doing anything else. (63.)

I am one of the greatest lie-a-beds living. I live to a very limited extent, it is true. (64.)

I suffer so terribly, dear Madame, and my agony is so unrelenting, that I do not know what is to become of me. I do not want to die now. I have something to live for.

I have not written to you since my return, because I have been in such terrible suffering. I am better today. (65.)

But my old trouble has come back and I suffer more than ever. (65.)

I suffer so continually, dear lady; my paroxysms of pain are so frequent that I cannot think what is to become of me.

I do not want to die now, for I have something to live for. (65.)

In 1868 Berlioz twice fainted, fell, and bruised himself badly, and was under a physician's care for a month. He died in 1869.

The noteworthy fact that stands out in the foregoing citations (and it would be far more striking if I had reproduced the large number of complaints in the later years) is that Berlioz's sufferings were much more constant and intense as the burden of presbyopia came on, and the "accommodation function of the eyes became less and less." It is the rule, not however without many exceptions, that the sufferings due to

eyestrain lessen and disappear shortly after sixty. In this instance it was not so, and the poignancy of the complaints increased up to sixty-five. Note that at sixty-five it was his "old trouble" that "came back" to him. At the age of sixty-one his agony and insomnia were so great that he began taking laudanum:

When the pain of mind, body, and estate grow too much for me, I take three drops of laudanum to snatch some sleep. (61.)

It is six in the evening, and I have only just got up, for I took laudanum yesterday and am quite stupefied. What a life! (61.)

I wanted to reply to you forthwith, but intolerable pain, sleeping for twenty hours at a stretch, medical nonsense, friction under chloroform, doses of laudanum which were futile and only productive of fatiguing dreams, prevented me. (63.)

I can only write a line. I took a dose of laudanum last night, and have not had time to go to sleep quietly. (64.)

I wanted to reply at once, but my tortures, medical stupidity, doses of laudanum (all useless and productive only of evil dreams), prevented me. (64.)

In all the reports of cases similar to that of Berlioz we have abundant evidences of the close connection between literary labor and suffering. The story repeats itself here, even in the detail so frequently found of inability to focus the attention, as well as the eyes, of blankness and "stupidity" when attempting to write. At times this inhibition is only overcome by intense excitement, "working at white heat," etc.

It is an effort to me to write prose, and about the tenth line or so I get up, walk about the room, look out into the street, take up a book, and strive by any means to overcome the weariness and fatigue which instantly overpower me. I have to return to the charge eight or ten times before I can finish an article for the "Journal des Débats," and it takes me quite two days to write one, even when I like the subject, and am interested by it. And then, what erasures, and what scrawls! (24.)

A martyr to insomnia, I lost all elasticity of brain, all concentration, all taste for my best loved studies, and I wandered aimlessly about the Paris streets and through the country round. (24.)

I once remained shut up in my room for three whole days, trying to write a *feuilleton* on the Opéra Comique, and not able even to begin it. I do not recollect the name of the work of which I had to speak (a week after its first representation I had forgotten it forever), but the tortures I went through during those three days before finding the first three lines of my article, those indeed I can recall. My brain seemed ready to burst; my veins were burning. Sometimes I remained with my elbows on the table, holding my head with both hands. Sometimes I strode up and down like a soldier on guard in a frost twenty-five degrees below zero. I went to the window, looking out on the neighboring gardens, the heights of Montmartre, the setting sun . . . and immediately my thoughts carried me a thousand leagues away from that accursed Opéra Comique. And when, on turning round, my eyes fell upon the accursed title inscribed at the head of the accursed sheet of paper, so blank and so obstinately waiting for the other words with which it was to be covered, I felt simply overcome by despair. There was a guitar standing against the table; with one kick I smashed it in the center. . . . On my chimney two pistols were looking at me with their round eyes. . . . I watched them for a

long time. . . . I went so far as to bang my head with my fist. At last, like a schoolboy who cannot do his lesson, I tore my hair and wept with furious indignation. The salt tears seemed slightly to soothe me. The barrels of my pistols were still looking at me, so I turned them to the wall.

Next morning I succeeded, I know not how, in writing something, of which I forget both subject and purport. . . . It is fifteen years since then. . . . and my punishment continues still. (26.)

I fear I shall not have the copies of the parts ready. At present I am quite stupid. The fearful strain of thought to which my work is due has fired my imagination, and I am continually wanting to sleep and rest myself. (27.)

You want to know what I do with myself? In the daytime, if I am well, I read or sleep on my sofa or I scribble a few pages. (30.)

When he is writing his hated feuilletons, "the lobes of my brain seem ready to crack asunder. I seem to have burning cinders in my veins." (W. A. Newman, of Berlioz.)

I am so extremely lazy about writing; my mind is as inert as my fingers. I have the greatest difficulty in fulfilling even my most necessary duties in this respect.

I have omitted all mention of my infernal article, which I cannot do at night, because sleep is an absolute necessity in my case. It is the first and most imperious of my wants. If I had to be hanged at nine o'clock in the morning, I should want to sleep until eleven. (49.)

I have to give you an account of my life during the last two years. This long time has been employed in the composition of an opera in five acts, the *Troyens*, of which, as in the case of *L'Enfance du Christ*, I have written both the words and the music. (55.)

I had to work at correction of the errors in the copy; then

followed my crises of tears, and convulsions of the heart. I could have written only senseless stuff to you. (56.)

I am so ill I can hardly hold my pen, yet I am forced to write for my miserable hundred francs, the while my brain teems with work and plans and designs that fall dead—thanks to my slavery. (58.)

I have not finished the score of Beatrice yet; I can so rarely work at it. (59.)

I am not yet able to resume my work upon Beatrice et Benedict. But it will have to be finished somehow. It, at all events, will be performed; but I am ill. (59.)

This letter has fatigued me terribly. (60.)

I am in such terrible agony that I can scarcely write. (60.)

All is going on well, except indeed that I have been writhing in agony in bed for another thirty hours. (60.)

My pain has come on again. I must go and lie down. (61.)

The pain is beginning and I must go to bed. (61.)

I am in such terrible pain this morning that writing is a horrible exertion. (61.)

I have no strength to write more; my head is like a hollow old nut. (61.)

There comes an attack as I write. (62.)

I am so ill that I can scarcely write. (62.)

I have such a wretched headache that I can scarcely write to you. (63.)

I did not write to you yesterday; I was too ill and too bad-tempered. (62.)

Still so unwell that at this moment I have scarcely strength enough to write to you. I am ill in every way. (64.)

My pain absorbs every other feeling, but you will forgive me. I can feel clearly that I am stupid. I only think of going to sleep. (64.)

It is an old and often observed truth that those afflicted with "migraine" have periodic crises of suffering, absolute relief alternating with the greatest suffering in a seemingly inexplicable manner. Again the case of Berlioz illustrates:

Yesterday I was too ill to walk; today, the demons of the internal regions have given me incredible strength. (26.)

I am very happy, life is charming—no pain, no despair, plenty of day dreams. (26.)

My health is quite restored, and I can eat, though for some time past I have only been able to swallow oranges. In short, I am saved and they are saved; I return to life again with pleasure. (28.)

You know how my life fluctuates. One day calm, dreamy, rhythmical; the next bored, nerve-torn, snappy and snarly as a mangy dog, vicious as a thousand devils, sick of life and ready to end it. (29.)

How unhappily I am put together, a veritable barometer, now up, now down, always susceptible to the changes of the atmosphere—bright or sombre—of my consuming thoughts. (29.)

I am very ill. Fruitless efforts on the part of Lobe and Chélaré to set me up. Preparations for the concert. The first rehearsal announced. My spirits rise. I am cured! (Biography, 39.)

Looking more narrowly into the connection between cause and effect we find that the case of Berlioz is like that of all the others; ocular rest, walks and journeys, outings and trips, near or far, become the rule, the necessity, and unless reading and writing are

taken up, there is a temporary freedom from pain and complaint:

. . . . enabling him to give up journalism and to travel. He was away frequently between 1841 and 1855, but not enough to account for the irregularly small amount of music he wrote—an amount that becomes still smaller in the later years. The seeds of his illness were in him and affecting his powers of work. (Newman.)

That frightful walk yesterday has undone me: I cannot move, all my joints are paining me, and yet I must walk the whole day long. (25.)

He had a mania for tramping and climbing that invariably carried him beyond his powers of endurance. (Newman.)

My health was quite restored; I spent whole days on the banks of the Arno and in a delightful wood about a league from Florence, reading Shakespeare. (28.)

I found life in town perfectly intolerable, and spent all the time I could in the mountains. (29.)

I had a fresh opportunity for recovering my health on the beneficent shores of the Mediterranean. (41.)

I feel so wretched from this stagnation after so much harmonious movement, that since my return I have been possessed by one idea day and night—that of embarking on board a ship, and going round the world. (42.)

I never was so wearily ill as I am now. I think of nothing but going to sleep; my head is always heavy, and an inexplicable feeling of uneasiness stupefies me. I need long, very long, journeys, and I cannot move further than from one bank of the Seine to the other. (47.)

Goodbye; I must go out and try to walk. If I cannot manage it, I shall go to bed again. (59.)

When first I went into the country my neuralgia was better,

but very soon it became worse than ever, from eight in the morning till four in the afternoon. (61.)

The first two days of my stay at Geneva made me think I was completely cured, so entirely was I free from suffering, but my pains subsequently returned more acute than before. Are you happy in your ignorance of anything resembling this? I am taking advantage of a momentary respite granted me by my pain to write to you. (62.)

How I suffer! If I could I would fly off to Palermo or to Nice.

It is horrible weather. I have to light a lamp at half past three. (62.)

Of what symptoms did Berlioz complain? What were his diseases? In his early student days at Paris, at about the age of twenty, he wrote:

I was utterly sick of the wretched music to which I was obliged to listen, and which would have infallibly brought on an attack of cholera, or driven me into an asylum.

That this is not to be taken humorously appears from the number of references to "cholera" or colic, throughout his correspondence:

I suffer still from that choleraic trouble that sometimes keeps me in bed. However, I am up today, getting ready for the next attack. (29.)

My need of music often makes me ill, it subjects me to nervous tremblings, and besides, the prevalent symptoms of cholera have confined me to my bed for several days, but today I am free, and ready to begin again. (29.)

For the last ten days my infernal colic has not stopped for an hour. Nothing does any good. (56.)

More frequently the simple (and meaningless) word neuralgia, is used, but sometimes more definitely, "neuralgia of the intestines."

As for me, I am a martyr to neuralgia, which for the last two years has settled in my intestines, and except at night, I am in constant suffering. When I was at Baden a short time ago, there were days when I could scarcely drag myself as far as the theatre to conduct the rehearsal. (55.)

You must know that I, too, have been rudely shaken by an obstinate attack of neuralgia in the intestines. There are days when I cannot even write ten lines consecutively. It occasionally takes me four days to finish an article. I am not in so much pain today, and I take advantage of that circumstance to reply to your questions. (58.)

I was very ill, and very much weakened by my neuralgic pains; one must pay for everything in this world. (60.)

I am still very unwell; my neuralgia has become intensified to a pitch beyond my powers of description. (60.)

I am almost as sorely tried as you are by my infernal neuralgia, I spend eighteen hours out of the twenty-four in bed. (61.)

My neuralgic pains have taken possession of me, and torment me regularly from eight o'clock in the morning until three in the afternoon, in addition to which I am suffering from an obstinate sore throat, to say nothing of weariness and vexation. (61.)

I am incessantly tortured by my neuralgia. Nevertheless I live, surrounded by physical pain, and worn out with weariness. (62.)

I suffer so frightfully from the increase of my neuralgia in the intestines that I do not know how I remain alive. (64.)

Laryngitis, bronchitis, coughing, sore throat, etc., are frequent complaints during most of the life:

At Florence I fell a victim to sore throat, and I was obliged to stop there until I was in a fit state to resume my journey. (28.)

I am still suffering from sore throat, and I verily believe it will kill me if I give it time. (29.)

I am back once more from the mountains, where I have spent ten days, pen in hand, amid snow and ice. If it had not been for my infernal throat I should have returned to them again by this time. (29.)

An attack of bronchitis that reduced me to keep my bed and do nothing. (35.)

My answer is short; I am as ill as usual.

After my fifth bath at Nérís the doctor, hearing me speak, felt my pulse and cried:

"Be off out of this as fast as you can; the waters are the worst possible for you, you are on the verge of laryngitis. Confound it all, it is really serious."

So off I went the same evening and was nearly choked by a fit of coughing in the train. (64.)

I am as ill as eighteen horses. I cough like half a dozen glandered donkeys. (64.)

Sometimes there is a combination of both neuralgia and sore throat, or a most suggestive and illuminating alternation of the two affections:

I was suffering from neuralgia in the head, as well as from my everlasting sore throat. (39.)

My laconic reply is—I am always ill.

I was in bed nearly the whole time. At length my sore throat departed, and my natural voice came back, but my neuralgia came back also, more ferocious than ever. (64.)

My nieces at Vienna nursed me devotedly, but when my

throat got better back came my neuralgia more fiendishly than ever. (64.)

Berlioz, aged forty-four, writes of "an unspeakable discomfort and nausea like that produced by the sea," and latter he alludes to "seasickness" while at home in bed, and a "wretched headache." In the Wagner-Liszt correspondence a peculiar figure is reproduced from a drawing of Berlioz which could scarcely have been made if he had not seen before his own eyes the "fortification spectra" or "scotoma scintillans," which is so frequently a forerunner of sickheadache. Through the indescriptive and often meaningless terms, "cholera," "colic," "neuralgia," "intestinal neuralgia," etc., the modern physician must thread his way carefully to conclusions. But the cumulative evidence derived from a score of similar cases corroborates the almost certain diagnosis of "migraine" with special trend of the reflex to the digestive organs. But from the first there was a persisting or alternating morbid result in the larynx and middle air-passages. It is noteworthy that in the case of George Eliot, her physician found that "laryngeal sore throat" was the chief complaint for many years prior to her death, and the only one, two days before her death, at sixty-one. Much the same might be said of Lewes. The role played by "colds" in the history of migrainous patients is an astonishing one when viewed collectively. That "migraine," in the vast majority of cases, is due to

eyestrain need not be reemphasized to any one knowing the proofs furnished during the last thirty years by hundreds of physicians and thousands of patients.

There is no patient who has suffered much from the reflexes of eyestrain who has not experienced the horror and bitterness of melancholy and depression. In Berlioz's case this gloom became so unendurable that suicide was many times planned, and twice attempted. Once emesis prevented death by poisoning, and another time he was dragged from the water unconscious and saved from suffocation by the efforts of others. Gloom began so early as sixteen, he says, and at the age of twenty he writes:

I became possessed by an intense, overpowering sense of sadness, that in my then sickly, nervous state produced a mental condition adequately to describe which would take a great physiologist. I could not sleep, I lost my spirits, my favorite studies became distasteful to me, and I spent my time wandering aimlessly about Paris and its environs. During that long period of suffering, I can only recall four occasions on which I slept, and then it was the heavy, death-like sleep produced by complete physical exhaustion. (20.)

He lapsed into a state of distressing melancholy, speaking to nobody, and spending his days in wandering through the woods and his nights in groaning in the dark. (22.)

Twice yesterday I have been a prey to extreme melancholy; I want to weep; I should like to die; I am having a worse attack of spleen than I ever had. (25.)

Again I relapsed into my habitual gloom and indolence. (25.)

I have been suffering from intense melancholy ever since Sunday; all this excess of emotion has upset me; my eyes are constantly full of tears, and I feel as if I should like to die. (26.)

I am weary, I am weary! The same thing over and over again. But I grow weary now with astonishing rapidity, and I get through as much weariness now in an hour as I used to do in a day, and I drink as ducks do water, for the purpose of finding something to live upon, and, like them, I only find a few uncouth insects. What am I to do? What am I to do? (26.)

I have been somewhat better during the last two days. Last week I was seized with a nervous depression so severe that I could hardly move or dress myself in the morning. I was recommended to take baths, but they did me no good; I remained quite quiet, and youth regained the upper hand. I cannot get used to the impossible, and it is precisely because it is impossible that I have so little life left in me. (26.)

I get more and more soul-weary, more utterly bored as time goes on. (26.)

It was during this period of my academic life that I once more fell a prey to the miserable disease (mental, nervous, imaginary, if you like), which I shall call the bane of isolation. I had my first attack of it when I was sixteen. (29.)

My passionate struggles against the horrible feeling of loneliness and sense of absence.

And yet what was this anguish, compared to the torture I have endured since, which go on increasing day by day? . . .

I do not know how to convey any adequate conception of this unutterable anguish. (29.)

A feeling of intense sadness, an infinite yearning for another state of existence, an intense disgust with the present; in fact, a regular attack of "blue devils" and a longing for suicide. (29.)

There are, moreover, two kinds of spleen—one ironical, scoffing, passionate, violent, and malignant; the other taciturn,

and gloomy, requiring rest, silence, solitude, and sleep. Those who are possessed by this become utterly indifferent to everything, and would look unmoved on the ruin of the world. (29.)

In the profound state of melancholy into which I had fallen. (35.)

I am so constituted that I sometimes suffer without any apparent reason. (39.)

The horrible moments of disgust with which my illness inspires me, during which I find everything I have written cold, dull, stupid and tasteless; I have a great mind to burn it all. (53.)

I live in an absolute isolation of soul; I do nothing but suffer eight or nine hours a day, without hope of any kind, wanting only to sleep, and appreciating the truth of the Chinese proverb—it is better to be sitting than standing, lying than sitting, asleep than awake, and dead than asleep. (53.)

I am ill and sad at heart. (55.)

To physicians, at least, if not to others, the attitude of the medical profession to this patient and to many such patients, is not without interest. Young Berlioz was the son of a physician, and against his will he had been bribed by his father to study medicine. One's curiosity is keenly aroused by the following excerpt from the autobiography:*

My father has an incurable internal disease, which has often brought him to death's door. He eats scarcely anything, and only keeps himself alive by constant and ever-increasing doses of opium. Once, years ago, he was so maddened by pain that

* There is a deal of doubt about the oft-bespoken "Inheritance of Disease," but there is none whatever as to the inheritance of organs—optically imperfect eyes, for instance.

he took thirty-two grains at a dose. "I don't mind telling you," he said to me afterwards, "it was not to cure myself that I took it." Instead of killing him, however, so large a dose relieved him instantly of his pain.

Another quotation which gives us pause is this:

My father was, it may be remarked, far less intolerant of second-rate doctors, who are not only more numerous than bad poets or artists, but are also actively instead of passively dangerous.

Concerning the conditions under which the students at that time pursued the fundamental science of medicine the following quotation makes us shudder, and makes us thankful that we live in a better time:

When I entered that fearful human charnel, littered with fragments of limbs, and saw the ghastly faces and cloven heads, the bloody cesspool in which we stood, with its reeking atmosphere, the swarms of sparrows fighting for scraps, and the rats in the corners gnawing bleeding vertebræ, such a feeling of horror possessed me that I leapt out of the window, and fled home as though death and all his hideous crew were at my heels.

Glimpses are obtained through these passages:

Precisely on that day I fell ill; the doctor, although a great lover of music (the learned and amiable Dr. Gaspard), forbids me to leave my room; in vain I am urged to go and admire a famous organist; the doctor is inflexible, and not till after Holy Week, when there are no more oratorios, or fugues, or chorales to be heard, does the Almighty restore me to health. (39.)

Dr. Amussat called on me. At sight of me he fell back a step or two.

"Hallo! What's the matter with you, Berlioz? You are as yellow as an old parchment. You look uncommonly irritated and exhausted.

"My dear fellow, you are on the verge of typhoid fever. You must be bled."

"Very well, don't put it off till tomorrow. Bleed me now!"

I took off my coat immediately. Amussat bled me freely and said:

"Now be kind enough to leave Paris as quickly as possible. Go to Hyeres—Cannes—Nice—where you will; but go south and breathe sea air, and think no more of all these things that are inflaming your blood and overexciting your nervous system, which is quite irritable enough already. It is not a case for delay, so good-bye." I took his advice and went to Nice for a month. (41.)

His doctors tell him he has a general inflammation of the nervous system. (54.)

Neither the Allopaths nor the Homœopaths, nor those who practice either method as desired, could help me.

I took five baths; with the fifth the doctor, feeling my pulse, cried, "Get out, quick, the waters are not good for you. You will have laryngitis. You must go elsewhere and have your throat cared for. The devil! This is no small affair!" I went away the same evening, and nearly choked from coughing on the train. At Vienna my voice returned, and my throat trouble disappeared. But my neuralgia returned, more ferocious than ever.

You talk like the doctor. "It is neuralgia."

Yes, I am in Paris, but so ill I can hardly write. (64.)

When he returned from the banks of the Neva, Berlioz experienced great lassitude, and his nervous malady grew worse. He went to see the famous Dr. Nélaton, who, after having sounded and questioned him, said: "Are you a philosopher?" "Yes,"

replied the patient. "Well, then, put some courage into your philosophy, for nothing can cure you." Thus assured of a speedy and fearfully painful death, the old maestro made up his mind to change his bed of suffering.

How far in a given instance, disease affects the character both of the man and his literary or artistic productions is, of course, of difficult determination. Every experienced physician who has scrutinizingly observed patients for many years, can be in no doubt of the fact, and especially must it be true as a general statement. The word *cretin* designates mental as well as physical peculiarities of a pronounced type. The influence of chronic alcoholism upon the moral and mental nature is evident to all. Out of a severe illness no patient emerges with the same disposition as before. Any number of similar truths and their illustrations will recur to the reader. How certain, therefore, that a morbid factor operating agonizingly throughout a lifetime and every day, upon the head, the center of thought and feeling, and upon the digestion, the mechanism for the supply of all physiologic force—how inevitable that the emotions, patience, self-control, mentality, etc., should be, if not morbidized, at least profoundly changed and colored; and if this is so it must follow that the literary, musical, or artistic qualities and abilities of the changed maker should themselves be other than they would have been had not suffering been there to endure or to irritate.

violent literary themes, with their clangorous rhetoric and their purple coloring, he now loves to dwell among themes of classic purity of outline, and to lavish upon them an infinite delicacy of treatment. . . . In much of the music of "Les Troyens" there are only too many signs of physical and mental exhaustion. . . . he was shattered by the disease that broke him body and soul. So he retired into himself and waited, as calmly and philosophically as might be, the end. . . . The later music, as I have tried to show, is generally beautiful enough; the fault does not lie there. But Berlioz failed to beat out for himself the new forms that might reasonably have been expected from him by those who had followed his career from the first. . . . Nothing in him comes to full fruition. Each branch is lopped off almost as soon as it leaves the trunk. He is a pathetic monument of incompleteness. His disease and the ignorant public between them slew his art!

The conclusion draws itself. But one should add that the medical profession of continental Europe, and most of that of the rest of the world, is as incapable today of preventing these tragedies as it was fifty or one hundred years ago. In addition to the incapacity of ignorance it has now added the sin of wilful negligence and lazy prejudice. The present-day Berliozes, Taines, Balzacs, Nietzsches, Wagners, etc., are crippled with the same mysterious, relentless disease, "the nature of which," as Osler erroneously says, "is unknown," and civilization still watches the wreckage of thousands of precious lives, and the stifling or morbidizing of the creations of their genius. When the literary, artistic, and scientific worlds once thoroughly

realize how so many of their members have had their lives made tragical by the fault of still recklessly living medical prejudice, it will rise in unforgiving wrath against us. Civilization itself, indeed, should be mightily concerned in the matter. The millions of cases of equally great personal tragedies of school children, students, sewing women, clerks, workmen and workwomen, and handicraftsmen, who have succumbed to a similar fate, but "all unknown of fame," add their silent reproaches.

THE ETIOLOGY OF ASTIGMATISM.

CHAPTER VIII.

THE ETIOLOGY OF ASTIGMATISM.*

It is amazing that ophthalmic science, especially that of Europe, has never concerned itself with the question of the origin or the effects of astigmatism. The least curiosity as to these matters would have been worth a thousand times all the study of a thousand textbooks, covering the mathematics of the condition. The causes of astigmatism are thus epitomized by Norris and Oliver:

“Traction on the cornea, as seen in peripherally situated cicatrization wounds, either accidentally or purposively made, superficial tumor-growths at the corneal limbus, symblepharon, and pterygia, all may be the production of astigmatism. Direct and indirect pressure on the cornea or the sclerotic, as, for example, from newgrowths that are situated either in the orbit or in the eye-lids, and spasmodic contraction of the orbicularis muscle, are said to give rise to corneal astigmatism. In contradistinction to this, irregularities of the tunics at the posterior pole of the eye may produce an astigmatism by faulty curvatures of that portion of the retinal sheet which is situated at the macular region. Astigmatism is also said to be caused by intraocular pressure and tonic contraction of the exterior ocular muscle groupings. The variety that is produced by lid-pressure is

*From *Annals of Ophthalmology*, July, 1905.

either a temporary form of the regular type, or, more frequently, an irregular one of meridional character. In this connection it must not be forgotten that a spastic condition of a series of extraocular muscles, as is occasionally seen in some types of nerve disease, may give rise to temporary forms of the condition."

Norris and Oliver supposedly summarize the ophthalmic knowledge of the day; and this series of obfuscating statements may therefore be taken as illustrative of the vagaries and indetermination of professional opinion upon the subject. There is not a word or suggestion in it which helps the student of physiology or of medicine, or the practising physician and refractionist, to understand the origin of this tremendously important form of ametropia. The baneful effect of anatomic pathology to the exclusion of physiologic pathology is seen in every line quoted. Wounds, tumors, inflammation, tumors, spasms, tumors, mysteries, tumors, nerve diseases, tumors—how do these things, found once in a million cases of astigmatism, help us to understand the cause in 999,999 cases, where tumors, inflammations, newgrowths, and spasms have not existed? Macular malcurvature is also listed, without a statement as to the size of the image of a test-letter at the macula. Intraocular pressure, the true cause of corneal symmetry, is also adduced—a cause that acting alone would reduce corneal asymmetry or make it impossible. The actions of the external ocular muscles almost surely have at best only a secondary

and subordinate role in causing astigmatism. The one real and dominating cause, lid-pressure, is befoggingly called "an irregular form of meridional type," or a "temporary form of the regular type." But what is this regular type? Evidently, tumors and wounds and the rest, judging from the list above. But if not, there is not the least hint of an explanation either of the cause or nature of this all-important "regular type." Beauty, sang the poet, is its own excuse for being, and so evidently is astigmatism. It is, because it is. Johnson rebuked Boswell severely for asking why a pear is shaped as it is and an apple of a different shape. "God wills it," "Fate rules us all," "Allah is Allah," are quite as satisfying explanations, either of astigmatism or of the world, and of our destinies in it. If we turn to other textbooks we find the explanation of the most to consist in the platitudinous "congenital or acquired" which is equally amusing and unsatisfactory. If congenital, what caused the failure to secure an all desirable corneal symmetry? If acquired, how and why? Astigmatism of the "unglassed" is wrecking the lives or happiness of millions of people, and necessitating an expense of millions of dollars by those who wear glasses. Its nature and cause therefore become highly important matters. One will occasionally find a statement seemingly made in the interests of the tenotomists that the tensions, malinsertions, or abnormalisms of the external ocular muscles are the cause of corneal

malcurvature. But when one asks how this is possible or probable, no answer can be found. The shorter radius of curvature in the vast majority of cases is the vertical, but if there is any excess of tension of one set of muscles over the other it is that of the combined internal and external over that of the combined superior and inferior; and this would cause the lesser curve to be horizontal. Surely then the role of the external muscles is nil, or subordinate and secondary. It seems probable that the internal and external recti muscles act to neutralize the tendency otherwise caused of the vertical meridian of the cornea to be the shorter. Cooperating toward this end of symmetry is the intra-ocular pressure, which would tend to equalize inequalities of curvature, but which is erroneously named as a cause of them. A single or at least a usual and dominating cause for the lesser vertical curve is to be sought. Have we not overlooked this? Is it not evident that this physiologic, simple, and always present source of the mischief is lid-pressure? Those few varieties due to abnormalism of the lens, to traumatism, or to inflammatory diseases are, of course, exceptions to this rule, evident, pathologic, and *sui generis*.

There is a striking clinical proof of this lid-pressure origin which I once showed in a paper on Albinism. If hyperopic, as the majority are, albinos have high degrees of astigmatism at axes 90°. The long continued and intense efforts to shut out the light by closure and

pressure of the lids naturally result in a highly shortened radius at axis 90° . But what happens in the albino in a high degree and pathogenically, also happens in all human beings in a less degree, and physiologically. In the first volume of *Biographic Clinics* I suggested the existence of as many as a dozen distinct and cooperating mechanisms whereby the retina is shaded and the conditions of retinal sensibility preserved. I should have added another—the habitual position of the border of the upper lid, when the eye is “open,” just at the upper edge of the pupil. Indeed it commonly is below the upper limit of the pupil. The greater part of light, either outdoors or indoors comes from above, the retinal image being formed by reflected light entering the pupil from below. The result is evident that the eye-brows, upper lid, and its lashes, act as shields against the light from above. This shielding is plainly one of the great requisites of clear retinal images and unexhausted retinal sensibility. All of this has much practical significance as to the methods of artificial illumination of our houses and public buildings, especially of our schools. Its ignoring is a fruitful source of social and educational evils. The highly necessary exclusion of the light from above is therefore chiefly brought about by the placing of the border of the upper lid so that it prevents the entrance to the pupil, in the usual head position, of the light from above. In doing so it necessarily presses upon the cornea just above its

central or most important optical portion, and this pressure causes the shortening of its vertical curve which exists in nearly all eyes.

If the eye is hyperopic the usual astigmatism is at or near axis 90° , the shorter curve being vertical. If the eye is myopic, the great majority of axes are about 180° , the essential or anatomic condition as to the radii, remaining, of course, morphologically identical. In hyperopia the refracting power of the 180° meridian is artificially and positively made equal to that of the 90° meridian by the plus cylinder at axis 90° . In myopia conversely the shorter 90° meridian is made equal to the reverse meridian by the negative or minus cylinder at axis 180° . The total correction of the combined myopia and myopic astigmatism could, of course, be corrected by a high minus spherical lens, and the astigmatism then neutralized by a plus cylinder at axis 90° . As this would make a more bulky and heavy lens, it is practically better to use the minus cylinder combined with the minus spherical.

Dr. Bennett has shown that in presbyopes the plus astigmatisms at 90° tend to reversal and become those of 180° . No explanation has been offered of this fact so far as I am aware, but if it is true that the lid-weights and pressures are the preponderant physiologic causes of astigmatism, it follows that the change to 180° astigmatism in old age is due to lessened lid-pressure and lessened refraction power of the globe. The

greater tension of the internal and external recti then comes into play. Everyone knows that in the old the lids are less heavy and thick and tense owing partly to the absorption of their fat, etc. While seen through the ophthalmometer, the raising of the patient's lid by another, softly from the globe, will lessen the amount of astigmatism. One cooperating cause of lessened lid-pressure in the old is the retraction of the globe or lessened pressure upon the globe from behind, due to the absorption of orbital fat, etc., whence comes lessened refraction power and tendencies toward myopia, or 180° astigmatism. Another cooperating cause is probably lessened intraocular pressure in the old.

These facts and their explanation illustrate the fact of the continuous and retained resiliency of the cornea, and that the astigmatisms or variations from uniformity in its radii are caused by some agency external to the globe itself. In itself the cornea is or would be nearer an ideal contour than the vast number of astigmatic abnormalisms would at first sight seem to warrant. Operating alone the normal intraocular pressure would prevent astigmatism. It is the effort to protect the pupil from light from above, and the eye-ball and cornea from exposure, drying, light, injury, etc., which produces the morbid factor of astigmatism. Hence the silliness of the quackery which would abolish astigmatism by massage of the eye-ball. If shadowing of the pupil were not necessary, if convergence and

downward looking were not demanded, if the lids could be taken away, if winking were abolished, if light and dust were not admitted, if tears were not needed for continually washing and lubricating the globe, etc., then astigmatism would be absent in the great majority of eyes.

In some animals we find an approximation to those conditions. Has any one studied the biology of the pupil, its shape, size, varying conditions, and functions, in different types of animals, and according to circumstances? Valuable lessons and suggestions would doubtless result. In the purest types of nocturnal animals, as the owl, there is no descent of the upper lid, the eye is always "wide open," and the pupil is in permanent mydriasis. The dazed condition of mind of this animal in the day is explained by its inability to form a useful retinal image, swiftly, and the resultant danger in flight. It will certainly have no astigmatism. There is the same wide retraction of the lids in the mixed night prowlers, such as the cat, but there is provision for safe activity by day in the pupil narrowed to a vertical line. Astigmatism is also probably absent here. But the 90° line-like pupil is highly suggestive when the animal's habits and powers are considered. A glance through the illustrations of any book upon birds and animals with this thought in mind, is peculiarly illuminative. The conditions of the life and hunting habits, for instance, of the birds in relation to

the visual function, governs the entire matter of the feathering and expression of the face. When the conditions are most difficult, as in the owls, the feathers are often arranged in two wide-flaring concentric radiating flattened circles of feathers, to give the eyes the greatest ease of seeing in all directions, especially desirable in a bird flying in the night, and among woods, etc. In the hawks and eagles this is not so necessary, and the upper lid and feathers may be used to shade the eye from above. In birds exposed to dangers from above, the upper lid must be completely retracted. In land animals the same law holds—the upper lid descends to shade the retina whenever the conditions and habits permit. The exophthalmos, or the retraction of the eye-balls, in all animals, also depends upon similar necessities and conditions of living. In erect man the overhanging eye-brow and better shading of the eye by many mechanisms, is at last rendered possible, with higher visual function and judgment. But with the dropped upper lid, and its pressure upon the corneal border, there is the production of the dangerous astigmatism! It is at least certain that one of the most valuable aids to the progress of civilization is the correction of the astigmatism of the modern man. Dr. Woodruff has written a most excellent and suggestive book, "*Effects of Tropical Light on White Men,*" but a great modifying truth was omitted in the non-recognition of the role of eyestrain, the effects optically

and pathologically upon the eye itself of tropical light. Almost every page of Dr. Woodruff's volume needs restatement from this standpoint. The incidence of disease, the peculiar social customs, as the midday siesta, clothing, etc., the mental and moral questions, gain a rephrasing by an adequate conception of ocular physiology and pathology.

Observation shows that the lower lid has little effect in the origin of astigmatism. It does not rise in winking or sleep so much as the upper falls, and indeed hardly rises at all. This shows the dominance of the necessity of shading the pupil from the light from above. The function of the lower lid is a lessening one in our civilization in which we are looking downward more and more.* This more exacting demand for a finer outworking of the retinal function required that the shading lid-edge should fall precisely so as to prevent the disturbing and wearying entrances of light from above. This descent and habitual accurate placing has brought its inevitable pathogenic astigmatism or bending of the vertical meridian of the cornea.

If the lower lid, as is evident, does not press against the cornea from below, as does the upper from above, it will follow that the sharper curve will be of the half above the center of the pupil. A peculiar type of irregular astigmatism must often result, and one which

* I have had one patient who could voluntarily raise the lower lid over the pupil without any descent of the upper.

our symmetric astigmatic spectacle lenses and test-lenses will not neutralize. The thought is thrown out here in order that some one more capable than I may undertake an investigation and elucidation of the theory, and possibly devise lenses which will neutralize the varying refraction of such a cornea, greater above, and less below. If this variety of astigmatism exists it must follow that there is eyestrain unsuspected and uncorrected by our present cylindric lenses, and which may help to account for some of our failures to cure in certain puzzling cases. That the lid-pressure is the chief cause of astigmatism and that the upper lid is the chief source of the phenomenon, as also that it produces an unequal degree of convexity above and below the center of the pupil, is demonstrated by a simple experiment. I have, for instance, often found that a distant object, especially at night, and if made up, as outline letters and signs by electric lights,* can be seen much plainer by widely "opening the eyes." Conversely, by nearly closing the lids, the increased astigmatism soon shuts out the form of the letters.

One of the great mistakes made by oculists in the past has been the inexact diagnosis of the axes of astigmatism. It is strange, and even blameworthy, that all of us have not individually and collectively discovered that there are more astigmatisms than we had

* The sign, *e. g.*, "Pennsylvania Railroad," at the Jersey City railway station.

supposed at axes slightly different from the usual 90° and 180° . If we found them near these locations we negligently called them 90° or 180° , and thought no more about it. And hence the continuance of suffering on the part of many of our patients, and the failure to recognize fully a great truth which will eventually be seen to constitute one of the greatest of modern medical discoveries. One reason of our inexactness was that we allowed our patients, while being refracted, to sit with the head tilted from 5° to 20° , and this is the chief cause of our failure to locate certain axes of astigmatism with accuracy. By a simple test anyone can demonstrate that these slightly variant axes necessitate an inclination of the head to one side in order to increase visual acuity. Long continued head-tilting in the young, whether from astigmatism directly, or from the morbid writing posture, the result of visual necessities, produces secondary and compensatory lateral spinal curvature, and there are thousands of spines being thus morbidly curved. When the fact is clearly perceived, and when the role of preventive medicine is recognized, there will be a revolution in orthopedics, and the secret of thousands of medical cases, of mysterious and persistent ill-health will become clear. For spinal curvature, functional at first and for long, is a hundred times more frequent than the profession dreams. And in an erect animal like man, such a wrenching and twisting of the spinal column

is productive of strange, far-away, and multiform diseases and symptoms. Innumerable patients are being treated unsuccessfully for these symptoms and effects, and the back is never looked at, the spinal abnormalism never suspected; and if recognized its ocular origin would not be admitted. The trouble is functional for so many years that if posture and habits are not noted, and if refined methods of diagnosis are not instituted, the abnormalism would not be detected even if the hasty and superficial examination of the back should be made. As to therapeutics, all the massage, exercises, and physical culture methods that are devisable will not usually effect a cure so long as the head must be tilted in order to see plainly. If under the circumstances the spine is kept straight it will be accomplished at the expense of amblyopia and other kinds of injury and suffering due to eyestrain which nature evidently thinks are worse than scoliosis.

Why these axes of astigmatism slightly variant from "the rule" of 90° and 180° ? Every oculist has noted that when not thus at 90° or 180° the axes of the two eyes tend to be symmetric, *i.e.*, if the right axis is 75° , 60° , 45° , etc., that of the left will be 105° , 120° , 135° , etc., respectively. They tend strongly to cluster about the vertical or horizontal meridians, and those beyond 20° away are very few. The origin and explanation of the fact I believe lies in the combined effect of convergence and what has been named deorsumduction or

downward looking, multiplied and intensified a thousand fold by civilization. Man is the only animal which has acquired a still doubtful parallelism of the axes of vision. The convergence demanded by civilization is not yet established as a habit or constant ability. But all reading, writing, and handworking requires a crossing of these axes at from 10 to 20 inches from the eye together with a habitual and synchronous depression of their planes from 20° to 50° . The natural result of these functions when combined is to incline the astigmatic axes caused by lid-pressure, normally at 90° in the hyperopic, either toward the nose or away from it, so that the prolonged axes would meet below, forming a letter V, or above, the same letter inverted, or caret, Λ . The larger number of such symmetric axes are the caret axes in which with the right at 85° , 80° , 75° , 70° , etc., the left will be at 95° , 100° , 105° , etc.

If this symmetry is maintained, and if binocular vision is preserved, there will be no tilting of the head because any advantage in visual acuity gained in one eye by bringing the variant axis to 90° would be neutralized by the pronounced astigmatic blurring of the image of the other eye whose axis would be thus thrown further away from the 90° meridian. Besides this there is a psychic union or averaging of these symmetric axes, which furthers what may be called the law of symmetric averages. The mechanism whereby these variant axes are symmetricized is thus almost always

dominated by the lid-pressure acting as a constant force, but modified by the new factors that come into play with combined convergence and deorsumduction.

What are these modifying agencies? The chief is probably the action of the obliques in rotating the eye-balls under the new and great exaggerations of combined convergence and downward looking demanded by civilized life. Another may prove to be the relative points of insertion of the recti muscles also concerned in the new morbid task of combined convergence and downward looking, and the resultant variations of trends of the traction, followed by tilting of the astigmatic axes, modified by and coupled with the interference with free movement of the eye-balls by the nasal bones and shape of the orbit. A skull illustrates this anatomically, and physiologically it is demonstrated by asking a patient to fix upon an object held at the extreme near-point with axes of vision horizontal and then observing the difficulty or impossibility of transfixing the object when it is depressed 40° below the horizontal. This cause of the switching of the normal 90° axes thus becomes clear. It need only to be noted that civilization with its myriad kinds of "near work," especially reading and writing, has tremendously increased this need of combined convergence and downward looking, and at a time of life, during youth and school days, when the accommodation is great, the book or writing held close to the eye, and when the

cornea is most plastic. The practical lessons to be deduced from the fact are thus:

1. The greatest care necessary in diagnosing these slightly variant axes with the 20 foot tests.

2. The duty, frequently, of an equally careful retesting the location of the axes at the reading distance. It will be found sometimes that the amount of the astigmatism will not differ at the two ranges, but that the axes will not be the same at 14 inches as they were, and are, at 20 feet. Thus a prescription differing in the axes of astigmatism may be required in the two sets of lenses for distance and nearspectacles. This may rarely be the reason why bifocal lenses cannot be ordered, as these require the same axes in both the near and distance lens. It may also account for the inexplicable dissatisfaction and eyestrain which sometimes persists in reading and writing after the most careful correction has been made, although usually this undoubtedly is due to the common, yet commonly overlooked sub-normalism of accommodation.

3. The wisdom of holding the book as nearly on a level with the eyes as may be, and of sharply pitched desks in writing, whereby the writing paper may be placed opposite the right shoulder. Writing with low and level tables or desks compels the writer to get above and look down upon, instead of off at, his writing, and produces the major part of the 27 percent of the lateral scoliosis of school children.

4. The placing of the habitual reading and writing focus at a point critically designed to make it as far as possible without running into the other danger of producing a wearying and physiologically expensive small image upon the retina. This must be decided upon after careful consideration of personal habits, kinds of near work done, the size of the print, chirography, sewing, etc., customary with the patient; the amblyopia present, the natural acuteness of vision, etc., must also be taken into account. We should, therefore, urge upon patients the use of large, well rounded letters in writing, good black inks, good paper, and the rest, as well as the vertical handwriting always to be emphasized. In general, both upon the patients personally, and persistently upon the public, we should in season and out of season, advise the use of large type, as large as may be, the blackest and best printer's ink, wide spaces between the lines, and opaque paper with dead surface. This will enable us to focus the reading glasses at a greater distance, say 16 inches, than is possible with print, paper, etc., that compel a reading distance of 10 to 12 inches. The special application of this rule to needlewomen, typewriters, musicians, artists, mechanics, handicraft-workers, and others, need not be described.

Intermediate between the regular and symmetric astigmatisms and those showing complete asymmetry may be placed an odd variety that belongs to neither

class exclusively, and which exhibits traits of both. These are such anomalies as the following:

- a.* Both axes of hyperopic astigmatism at 180° .
- b.* Both axes of myopic astigmatism at 90° .
- c.* One axis of hyperopic astigmatism at 90° , while that of the other eye is at 180° .
- d.* One axis of myopic astigmatism at 180° , while that of the other eye is at 90° .
- e.* One axis of hyperopic astigmatism at any variant, while that of the other eye is at right angles to it, as, *e.g.*, one at 75° , the other at 165° .
- f.* The same as regards myopic astigmatism.

All these types bear witness to a common cause, the lid-pressure, chiefly, acting with a different incidence in the two eyes, and specially modified perhaps by many conditions, such as orbital shape and space, habits and necessities of work, onesidedness of function or exposure, relative amblyopia of the two eyes, insertions of the extraocular muscles, and others. One may sometimes detect a difference in the physiologic tightness or closeness of the lids of the two eyes in relation to the globes.

There remain the frankly unsymmetric varieties. We have excluded those few due to tumors, traumatism, surgical operation, and the direct action of inflammations of the cornea and conjunctiva. Among those of this class too little attention has been given to those resulting from lid diseases. A meibomian cyst will

warp the cornea and temporarily at least change either the amount or the axis of astigmatism undetected. Palpebral conjunctivitis, incipient granular lids, localized or general in one eye more than another, may increase the lid-pressure and thus specially modify the relative astigmatism. Such inflammations or hyperemias may no longer exist but their effects still remain and show as relative differences in lid-plasticity, thickness, smoothness, weight, etc. Relative variations in exophthalmos or retraction of the two eyes, in "puffiness" of the lids from albuminuria, are among other possible causes of these variations.

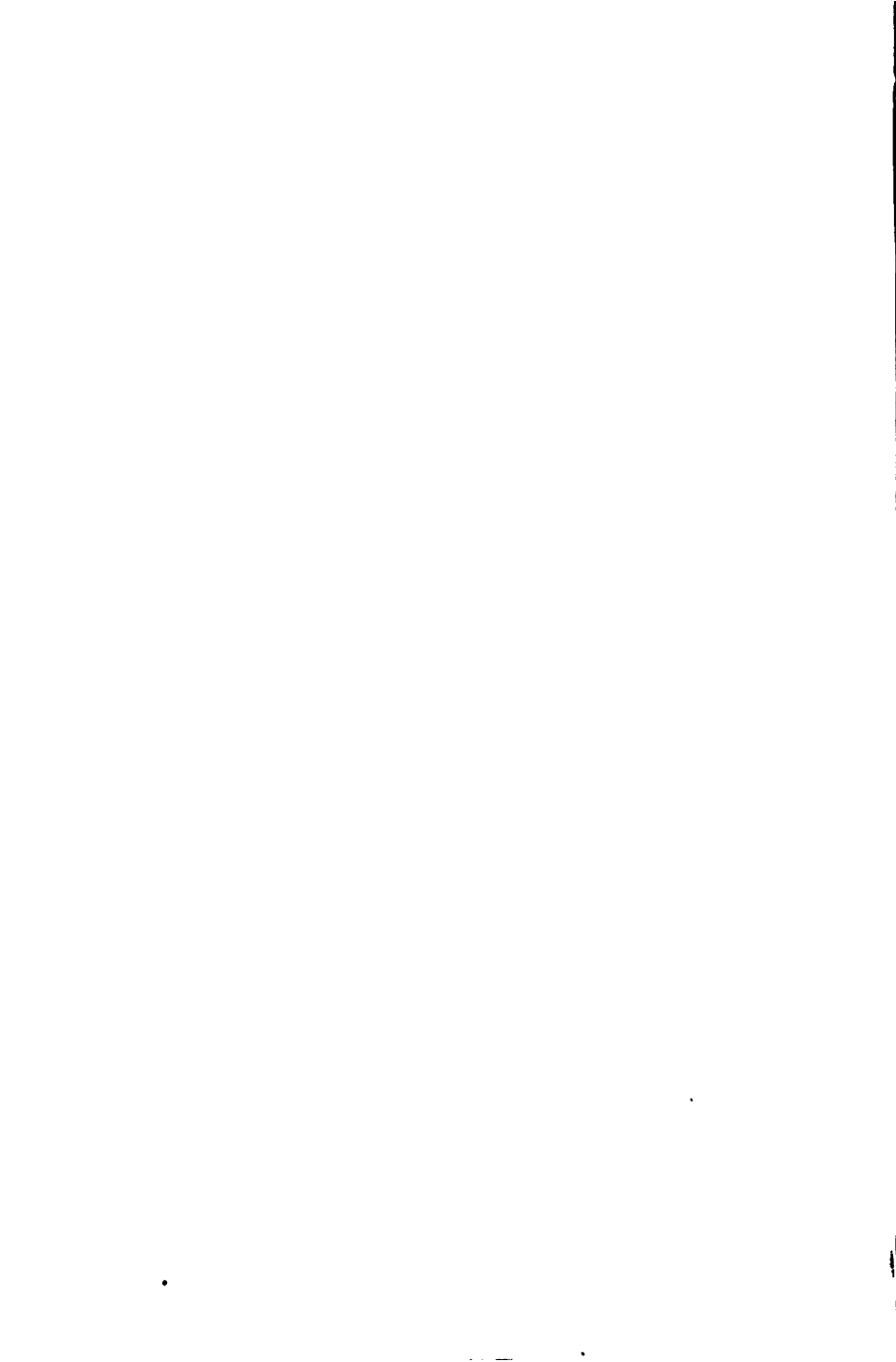
Of true asymmetric astigmatisms the most important class is that made up of those which compel a tilting of the head, (with resultant spinal curvature), in order to see more plainly and especially to see printed letters more distinctly.* If the axis of astigmatism of the dominant eye varies from 90 or 180 by 5, 10, 15, or 20 degrees while that of the nondominant eye is unsymmetric, the patient must incline the head to a corresponding degree in order to see print or vertical handwriting plainly. He tilts the head to the right when

*See "Torticollis and Spinal Curvature," *American Medicine*, March 26, 1904; "Malposition of the Head," etc., *ibid.*, May 21, 1904; "Dextrality and Sinistrality," *Popular Science Monthly*, August, 1904, and "The Pathologic Results of Dextrocularity and Sinistrocularity," *Ophthalmology*, October, 1904; "The Optic and Ocular Factors in the Etiology of the Scoliosis of School Children," *American Medicine*, April 8, 1905; "Visual Function, etc.," *Medical Record*, April 22, 1905.

that is required to bring his ocular axis to 90 or 180 and to the left when, conversely, that is required by the peculiar axis to bring it into alignment with the normal 90 or 180 . The larger number tilt to the right because most of the young are hyperopic (the astigmatisms of the eyes are generally at or near 90), and lastly, because, when variant from 90 , the great majority of the right or dominant eye variants are at 75° or 80° . When the variation is further than 20° from 90° , the tilting would become too pronounced and impracticable, other morbid results then follow. In addition to or in modification of this law I have lately discovered that head-tilting may be caused by another kind of unsymmetric astigmatism: if, for instance, the axis of the dominant eye is 55° , and that of the other is 105° , there is a partial neutralization of the asymmetry, but there is left a residuum of 10° , which will require a corresponding inclination of the head to the right to produce the effect upon the mind of a 90° axis of the dominant eye. This may be called the law of unsymmetric astigmatic averages in dominance. It is a corollary of the law of symmetric averages alluded to.

Astigmatisms that do not group themselves in any of the preceding classes exist, and can only be explained as individual variations produced by some cause differing usually from those in other cases, the result of some old inflammation, of injury, of heterophoria, amblyopia, or ametropic strain, etc.

The general reason for the slight differences in the tilting of the axes hardly needs mention. There is nothing absolutely symmetric in biologic structures. The eyes are never on the same level, or equidistant from the nose, the orbits never exactly alike, the insertions of the muscles never mathematically the same, the nasal bones vary in width, height, contour, etc.; when such variations are of a certain degree or peculiarity, they modify the results of the constantly acting cause, or lid-pressure, and bring about small abnormalities of astigmatisms in numerous ways.



A STUDY OF FAILURES IN OPHTHAL-
MIC PRACTICE.

CHAPTER IX.

A STUDY OF FAILURES IN OPHTHALMIC PRACTICE.*

WE are all so grateful for gratitude, so happy in our successes in curing, so hurt by our failures to cure, that we are prone to keep our failures out of sight and mind. We report our successes, but it requires a brave man to report his failures with utter frankness. The reporting, the gratitude, and the happiness, however, are by no means so instructive as a close study of the cause of the failures. Of my own cases and those of other oculists whose patients have consulted me, I have lately been making a careful examination, and the results, I think, should be openly confessed. The details of individual cases are too many to set forth, although if time and space permitted I should be glad to do so. But the gathering of them into classes and deducing the laws and lessons of each class will probably be more serviceable than to lose attention in a large number of individual instances.

By failure to cure I mean the failure to relieve those symptoms due to eyestrain. By symptoms of eyestrain

*From *Medical Record*, September 30, 1905. Read at the meeting of the American Academy of Ophthalmology and Oto-Laryngology, held at Buffalo, N. Y., September 14, 15, and 16, 1905.

I mean many local ocular diseases, such as blepharitis, conjunctivitis, pains in the eyes, asthenopia, heterophoria, choroiditis, retinitis, etc., when these conditions are not evidently due to other causes than eyestrain.

Glaucoma and cataract may be included in the list, although, of course, when established, these diseases are not curable by glasses. Preventable, I believe they are. Of capital, cerebral, and mental affections, due usually to eyestrain, I list headaches or migraines of any kinds, localized "neuralgias" and spots of pain, scotoma scintillans, head-tilting, neglect of and disinclination to study, read, etc., foreboding, melancholy, irritability, nervousness, insomnia, illogical conduct, exaggerated desire for physical activity, hysteria, neurasthenia, etc.

Of physical disorders the chief are those classed as dyspepsia, liver disease, constipation, "biliousness," flatulence, vomiting, anorexia, etc. A vast majority of such general denutritional affections are caused by eyestrain, although textbooks on them make no mention of the fact. Attention to the matter with scientific mindedness will probably show that many cases of persistent vomiting, and many of the diseases of the female generative organs, have been caused by eyestrain. A famous surgeon says his most brilliant cures of surgical diseases of the pelvic cavity, incipient or "chronic" appendicitis, etc., have been effected through the oculist and his own operations thereby avoided. Al-

most all of the paroxysmal neuroses may have the same origin, chorea and epilepsy beyond a question. Many a case of functional cardiac disease would find its explanation in the eyes. Of exophthalmic goiter I have little doubt the same could be said. Eczema, hives, and anomalous skin diseases certainly attend or follow migraine, and migraine is always due to ocular causes. Haig and his uric acid spook usually means eyestrain. Sometimes the connection, often existing, between circulatory or renal disease and the eyes, will be established. Vasomotor ataxia is another name for the nutritional or vasomotor affections which may follow severe eyestrain. The terminal diseases are frequently the servant-executioners of the long-preceding disorders of denutrition, etc., set up by eyestrain.

1. *The Want of a Single Good Refraction School in the World.* Helmholtz said that ophthalmology was by far the most accurate and scientific of all the specialties of medicine. I should say that it is now the most inaccurate and unscientific. We all differ from each other. If a patient with a history of migraine, somewhat complicated, and with ametropia and heterophoria, should go independently to one hundred different oculists, I doubt if any two diagnoses and prescriptions would be alike. Only smallpox can vie with eyestrain as a cause of human suffering, but a million more times concern has been devoted to smallpox. Eyestrain causes a thousand times more personal suffering than

tuberculosis, and yet the profession and world are a thousand times more interested in eradicating tuberculosis. From 25 to 50 percent of our own citizens are afflicted with eyestrain, and yet schools for the study of tropical diseases are multiplying everywhere, while there is not one, nor any signs of it, for teaching adequately the art of refraction. Morton's toe is apparently as important as astigmatism. Every refractionist is self-taught, has "picked up" his science and art as best he could. The "six weeks' course" will no longer avail—except for the quacks. There are physicians out of their true calling in any attempt at refraction work, ill-fitted by nature, but worse fitted by instruction, for an art than which there is none demanding higher intellect or greater skill. The day also of the worship of the scissors or of the ophthalmometer is long in the past. The useful tests, the education of delicate senses and judgment of the student by at least several years of close and special post graduate study—what Carnegie or Rockefeller, what general physician, has ever cared for these? And without such an institution there will never be an end of our one hundred different prescriptions by one hundred oculists for one patient's evil. The quacks are establishing "optical schools" by the dozen. It concerns us, mightily, to ask why; but we do not ask why.

2 *Bad case recording* is a source of failure to cure. It may at first seem an absurd nonsequitur, but I mean

it literally. For many years I was a sinner in this respect, and when I hear or see the reports of others I judge that many are as negligent as I have been. It will not do to jot down the few vague complaints the patient makes. To be sure, leading questions must not mislead. The great fault is not to elicit clear epitomizing statements of all the troubles of the entire life. Only the biographic clinic is valuable in seeking a diagnosis of or in getting a clue to the essential life-trouble or disease. Only that brings the seemingly unrelated phenomena into a clarifying unity. The patient does not dream that "dyspepsia," pain in the shoulders, amenorrhea, cardiac palpitation, inability to sew or read, truancy, "nervous breakdown," etc., may point to eyestrain, and so does not speak of them. When they are cured by glasses, as has taken place in unrecognized thousands, the oculist suspects as little as the patient what was the active therapeutic agent. When they are *not* cured by the oculist he does not reexamine the eyes, does not "stick to his case," until he actually does hit on the right glasses, etc., or until the cause is demonstrated to be of nonocular origin.

3. *The inexpertness, ignorance, or impertinence of the optician* may render all our work and hope of cure in vain. The number of ways in which this may come about is incredible. Examples are the right lens in the left side, or backside front, improperly centered glasses, toric lenses (which reflect 25 percent of the

light and prevent full stimulus of the retina), and one thousand and one methods of ill-fitting and ill-adjustment. Instead of stiff and rigid spectacle frames, the sole condition of accuracy in position, many opticians have actually been so blunderful as to seek for the most limp and slimsy thread-like templepieces. No frame should be lighter than $796\frac{1}{2}$ of the American Optical Company. For the majority of noses, and minds behind the noses, eye-glasses are an abomination, even with the most expert optician. Patients will get the bearing in a new place and thus exaggerate instead of lessen eyestrain. In some cases, say two to five percent, eye-glasses may even be preferable to spectacles. Of course no self-respecting oculist will allow a patient to wear spectacles and glasses he has not seen and pronounced correct. There is needed in every city and village at least one optician who understands his business, is able to do it, and limits himself to doing it. In many places where there should be several or many the incompetence of all is so amazing that to get rightly made and fitted glasses is an utter impossibility. The oculist in such cases does not care, he is not a refractionist, and his optician, of course, is appealing to the legislature to be allowed to become an oculist. The one scorns his proper task, the other aspires to his improper one! *Par nobile fratrum!* This will last just as long as we neglect our duty. We can end it whenever we will. The "eyes-examined-free" man,

who cannot fit a pair of glasses any better than he could read the Rosetta stone, exists even in Philadelphia, but he descends lower and lower in disgrace all the time, and we have a large number of expert and honest opticians.

4. *Changes in the patient's refraction*, not followed by changes in glasses, also lead to failures. Once for years I had to change a boy's lenses every few months to keep up with the increasing astigmatism and conquer his pernicious vomiting. Many patients require changes every year, and none should wear the same lenses more than two years. Otherwise, reflexes will appear, one or both eyes grow amblyopic, or heterophoria begin to squint at the muscle-cutters. Constant warnings to patients are necessary to prevent their neglect. I think we should follow the example of the dentists and notify our patients to return for examination as often as we think best.

5. *Incorrect diagnosis of ametropia* appears to be the most frequent source of failure to cure the disorders caused by eyestrain. I do not speak only of those egregious blunderers who think the small error of refraction is not worth noticing, but to those who, although recognizing its astonishing significance, fail to measure the eye-ball with mathematic precision, as regards the static errors, the exact amount of myopia, hyperopia, and astigmatism present, and the axes of astigmatism to within five degrees. When my blunder

in this has become clear to me and it has cost the patient months or years of suffering I can never forgive myself for the crime. The grievousness of the mistake arises from the fact that the static error of refraction is the primary source, the enduring condition, and the chief cause of all the diseases of eyestrain. It is indeed eyestrain itself, as heterophoria is secondary, and effect; so that failure to measure the ametropia accurately is failure to be worthy of the name of ophthalmologist. If eyestrain plays the havoc in the lives of people which we believe, if from 30 to 50 percent of all school children, as we know, have harmful errors, then our failure to do this bit of expert work expertly is our failure to do what we pretend to do. Glaring mistakes in these measurements made even by "specialists in diseases of the eye" are sadly common. Is it not so? Just how common they are each must answer for himself.

6. *Head-tilting*, unless carefully guarded against, prevents the correct placing of the axis of astigmatism. All patients with spinal curvature, completed or organic, are pretty certain to tilt the head to one side, and probably over 25 percent of people have some lateral curvature. When the curvature is in the making, that is, in the functional stage, the eyes are its cause, either through an axis of astigmatism in the dominant eye that compels the tilt of the head in order to see upright objects, letters of the alphabet, etc., plainly,

or when writing to see the "writing field" about the pen-point. Astigmatism estimated with head tilted 10° or 20° to one side is incorrectly estimated by just that 10° or 20° , and will never give the patient relief. Correctly placed, the astigmatic axes will tend to straighten the spine in young patients instead of accentuate it, and will relieve the other reflex phenomena.

7. *The morbid writing posture*, due directly to visual function, and inducing perhaps 80 percent of lateral curvatures of the spine, is a profound source of our failures. Orthopedists are now recognizing the true cause of this mystery and calamity. The eyes must see what is being written, and usually this is possible only by bending the head and body to the left. All lateral bending of the spine in any part absolutely produces rotation of the vertebrae, at first functional, and then organic curvatures. There result many types of disease and invalidism, the cause of which is unrecognized because nobody examines the backs of such patients. In all this astigmatism greatly aids. In the common writing posture of school children the head is not only bent to the left, but it is also bent forward, and also rotated upon its own axis. So that there are three morbid factors in inducing functional malcurvature of the spine. Function always precedes structure; organic morbidity is the result of functional morbidity. Pathology is physiology gone wrong. The child must be taught to sit erect, with head erect; the

school desk and paper-placing must be so ordered that there will be no lateral bending of the head or body in order to see the "writing field." The functional stage of lateral curvature persists even up to twenty years of age, sometimes later. It may be cured during this period, and may be helped even when, in later years, it becomes organic.

8. *Nonallowance for the patient's personal equations* may frequently account for nonsuccess. The static error found under mydriasis does not dictate the prescription. It is the chief datum, it is true, and any variation from it must be based upon it and kept in mind. But like all dead mathematics the static error must be converted into terms of life and function and modified by a large number of conditions. All vital statistics need vitalizing. The chief and always limiting factors leading to change in prescribing are: change of axis in the astigmatism by the mydriatic; the exophoria or esophoria present; the power, subnormal or supernormal, of accommodation; the age of the patient, the amount and kind and peculiarities of near-work and occupation compelled, the condition of the general health and vitality, the amblyopia from disuse, and others.

9. *The heterophoria-and-tenotomy error* will also sometimes account for failure to cure. One of the saddest tragedies for the implicated physicians, for the profession, for science, and especially for the pa-

tients, is the error of tenotomists who have operated for heterophoria. It cannot too often nor too strongly be urged that heterophoria in the vast majority of cases is refractional in origin and innervational in nature. It is generally nature's therapeutic method of obviating eyestrain by throwing one eye out of function. While it is in progress strain may very temporarily be lessened by an operation which partially lessens muscular imbalance. But this does not touch the cause of the mischief, and hence the heterophoria reappears if proper glasses are not ordered, and thus there is final failure. The permanent successes are those in which such ametropic correction is ordered after the operation. It is a crude error, or worse, to credit the operation with the cure, when it was really due to stopping the cause by glasses. Exophoria, or subnormal adduction, is always curable by prism-exercises and proper glasses; esophoria of high degree is not usually curable, but is rare, and I have never seen it cured by tenotomy. Hyperphoria is curable or neutralized by prisms worn permanently with the ametropic correction. Operation cures nothing, even if it reestablishes the muscular balance. But usually it does not do this. It succeeds admirably in one way—financially—for the operator.

10. The "*general-disease*" obsession kills lots of the oculist's patients, or at least confirms them in their pitiful plights. If the origin of their illnesses is eyestrain, all the drugs, rest cures, travel, wet packs, etc.,

at best bring only a temporary and partial relief. It flatters a certain class of minds that they can thank God they are not "hobby-riders," "specialist-exaggerators," etc., and with exquisite fatuousness they affect an immunity to such banal science. But in fact they are the most amusing and capital illustration of specialism gone mad. Of all in the world they discriminate least, and by their aid no patient will ever have the mystery of his disease solved. They walk in the cloudland of glittering generalities, filled with ghosts of "hysteria," "neurasthenia," "uric acid diathesis," "degeneracy," "the pace we lead," "nervous trouble," "dyspepsia," "inherited affection," and the rest, forgetful that such words are not even diagnoses, and surely never therapeutics.

Did the poet have the oculist or the neurologist in mind when he wrote:

Serene I fold my hands and wait,
Nor care for wind, or tide, or sea;
I rave no more 'gainst Time or Fate,
For lo, my own shall come to me.

However, as many astute ones have learned, the oculist's patients will "come to him" only on condition that he "glass" them, and, for general treatment, send them back to the neurologist and general physician (who referred them), and with no hint that the origins of their troubles are, or were, ocular. If dieting,

the "rest cure" or the "trip to the watering-place," the "run to Europe," or "course of strychnin" does good, it is often because the glasses have also been worn or use of the eyes interdicted. With resumption of ocular labor there is return of all the old troubles. This is because the spectacles were not wholly correct, were incorrectly worn, the refraction changed, or because of many other good reasons. It is, of course, very impolitic to show the dependence of these diseases upon eyestrain—"his own will cease to come to him"—but if there is one thing more than another that both the American people and profession need it is a flinging of policy to the everlasting bow-wows. Policy and politics are often a vile compound of cowardice and rascality. It can never reach the consciousness of the lay world that the source of so much of its mischief is due to optical defects unless we frankly avow the fact and prove it in the persons of patients. The practical recognition of the fact on the part of neurologists and general physicians seems generally beyond hope. To play the silent helper to them by oculists, and deceive the public, is neither humanly nor professionally honest. There are neurologists and general physicians who prove admirable exceptions to the rule, who still refer their cases to the oculist, frankly saying, "your chief trouble lies in your eyes." They may for a time be in error, as may we also be, but that does not much lessen the average of the truth. Such physicians are lovers

of the truth and of their patients. The hope of professional progress lies in them. They also help us oculists to differentiate between true and simulated ocular diseases, and to them we must trust for help in curing the really existing complicating general diseases and in overcoming the terrible results of long-continued morbid function and habits. In most of his patients the specialist deeply needs the help of the general physician, and the two should work together for the good of the patient. But to conceal the truth and deceive the patient as to the real facts is unwise. And in the long run it is impolitic. The game has already been played too long. Anno Domini 1904, in the most famous of American hospitals, patients were treated for astigmatism and for gallstones by the most famous of American physicians, by means of wet packs. There is hardly a day that patients do not appear in the oculist's office with the most atrocious astigmatism, and whose medical advisers have treated them for ten, twenty, or thirty years with no thought or suggestion of eyestrain. They have endured the most awful sufferings, their nervous systems and nutritional organs are possibly wrecked, their eyes may be hopelessly injured, and life so far has been a melancholy tragedy, and all these years the evidence has been before the profession that such diseases might have been prevented if eyestrain had been corrected during youth.

II. *Subnormal accommodation* is one of the most

frequent causes of failure to cure our patients of eye-strain glaringly present. The patient's symptoms are brought on by near-work, are not extinguished by the correction for distance, no matter how perfect it is, and the poor oculist is tormented by his inability to bring relief of what is evidently an ocular difficulty. I think a full half of my past failures have been caused by my stupidity in not recognizing the following facts:

The crystalline lens has no nervous connection with the brain or body, and hence its inherent elasticity, upon which its function depends, fails from infancy to sixty years of age. If we may so speak of it, it fails normally and regularly, so that in comparative emmetropia its failure at forty-five is such that the near point is so far as to make the image of ordinary print and writing so small upon the macula that the retinal and sensation-making task is too great and becomes morbid. The nourishment of the lens is also by blood-serum, by osmosis, instead of by red blood-corpuscles, and this adds to the inevitable loss of elasticity. What we have failed to notice is that these conditions also make certain a variation in the rate of failure and a difference of primary endowment of elasticity. These two causes would be sufficient to account for the frequency of subnormal accommodation. But there is another source of the mischief more profoundly and commonly present, and this is the fact that in evolution, biology, and human history, the function of accommo-

dation was brought into existence for only short moments or minutes, always interrupted and rhythmic, especially for the extreme required at a focal distance of ten, twelve, or fourteen inches. Suddenly come sewing, printing, school and literary life, commerce, and a thousand handicrafts which demand for many millions this close-range work and contraction of the ciliary muscle, almost without interruption or rhythm, for hours, for most of the day, for most days, and for most of the life. In no muscle of the body is such uninterrupted innervation and contraction demanded. By none is it possible. The maker of the eye never foresaw civilization. The present demands upon the nervous and muscular mechanisms of the eye in accommodation are beyond the limits of possible physiologic response, and hence eyestrain. The majority of the slaves of civilization require help, beyond the distance correction, in this task, and the need will depend upon the amount of near-work to be done, upon its kind, continuousness, light, etc., upon the initial power or vitality of the accommodation mechanism, etc. Even little children in this sense may be "presbyopic," and one of my most intolerable failures was in a boy of twelve who had persistent vomiting. Immediate and complete cure came at last with +Sph. 1.50 D. added in bifocals, to his distance correction. I am also convinced that the rate of failure of accommodation varies in different patients, and the subnormality of the two

eyes in one patient may differ greatly or even entirely. It is difficult to test the exact degree of subnormality in a given case, and often it is a matter of experiment and doubt. The rough rule has served me that where plus lenses over the distance sharpen the definition of the image of ordinary print at eighteen or twenty inches, subnormality is probably present. It is an elusive mischief, especially in patients with ill-defined, distant, and unexpected reflexes. Careful attention to its possible existence will often solve mysteries and worries in the most brilliant manner. But it will get one into a peck of trouble if the unaided accommodation is sufficient to do the patient's tasks.

12. "*Hysteria*." Among the incurables, those unhelpable either by divine or human means, is the confirmed hysteric. The term is vague and misleading, but it may be used of a strange conglomeration of diablerie, laziness, and mania for sympathy, which torments and pays the rents of fashionable neurologists. In its later stages long-continued malfunction produces genuine morbidity, but as its cherished parents still pamper it, there is little hope of relieving even the direct effects. The woman positively enjoys bad health, escapes from her still biting conscience by excuse and even the pleasure she has in disease, and "takes it out" on husband, father, profession, and civilization by spending as much money as she can, and by demanding more and giving less than any

person in the world. She has committed herself to the logical *impasse* of invalidism, and visits with her wrath whoever would open her chosen blind alley to freedom. Eyestrain is peculiarly prone and active in producing the beginnings and the less severe forms of hysteria. "The megrims" was for hundreds of years the other name and perfect synonym of our modern word hysteria; and genuine migraine is the firstborn of the children of astigmatism and light; but it is a great wanderer, and the brothers and sisters are numerous. There is a famous surgeon who, it is said, has acquired fame and wealth by an unerring caution in refusing to operate upon any patient he cannot cure. The oculist may not—perhaps—follow a similar Mephistophelian plan with chronic hysterical patients. But that would be better than deluding them with false hopes and useless long treatments. Such patients are often morally imbecile, and if one can be sure he can do them no good, that is if they will not obey and do not wish to be cured, it may be best to refuse to waste time upon them. Even the nascent hysteric will usually refuse to wear spectacles, demand eyeglasses, disobey orders, and prefer the *descensus averni* of her pitiless fate. Her parents should have written over her doorway the famous *Lasciate ogni speranza voi chi entrate* of Dante, placed at the entrance of another ill-regulated household. Theirs indeed the fault, and dearly do they pay for it. I have had

perhaps a half dozen or more of such unconquerables. Two I cured at the cost of much good life; some I succeeded in ridding myself of; several still remain to bless me and keep me humble!

Genuine neurasthenia appears to be a rare disease and seemingly differing from hysteria in almost every way, although often confounded with it. I know little about it, and suspect others do not know more.

13. *The patient who lives far away* forms one of the types of my failures, and I wish I might never have any whom I cannot see often and easily. Refraction work is highly peculiar in demanding constant attention. There are a score of good reasons for this. The ametropia often changes in a short time; some people never learn to keep their lenses clean, their lashes trimmed, etc., and such things will cause eyestrain as readily as others; the glasses are sure to get awry in all cases, especially if the optician is a "refracting" one, and, of course, refractory; I have had a patient travel five hundred miles to learn that his optician had placed a loose lens front side back; there are a dozen kinds of disobedience to orders and cautions; common sense rules of ocular hygiene are not to be got into the minds of many patients; no man would pump water an hour, uninterruptedly, with one arm, and yet he expects his eyes to do worse tasks for all day and every day; complicating diseases of the general system arise; mental worry and personal tragedy, of infinite variety, may

mimic the symptoms of eyestrain, indeed, are highly prone to do so. The list might be greatly lengthened, but it all comes to this, that disease is always individual, and no rules or habitual methods will replace intellectual acumen and studious differentiation. Therapeutics is the last thing a quack can understand or reach. The distant patient should be put under the care of a local colleague, with frequent consultation between the two. The rise of good refractionists—they are not usually the famous “ophthalmic surgeons,” of course—in most cities, now makes this plan feasible, but small cities still need such men badly. A thousand are wanted in the United States, and all could find work and place at once.

14. *Despairing of curing a patient* may lead to avoidable failure. There is a class of oculists, well represented in every city, who will continue to treat a condition, with care not to cure it, so long as there is money to be made by it—but that is not what I mean. In the great majority of cases of threatened failure or ill-success we become convinced that the mystery has not been cleared up, and that if we were wiser or more pains-taking it might be cleared up. In such instances we may grope blindly for an explanation and strike out as aimlessly, hoping that luck may bring us to clearness. Or we may too soon be satisfied that we have made no error in our diagnosis or prescriptions, and coolly tell the patient to go on and relief will come by and by.

In other words, we are too confident of our inerrancy, or too despairing of our ability to get at the heart of the matter. There is a great wisdom in going over the tests again and again, in studying the symptoms and the patient more narrowly and from new points of view. I remember once I tortured myself for a year to explain a strange opalescence (with amblyopia, eyestrain, etc.) of the cornea of an active, seemingly healthy woman. After a number of consultations with others and much worry I accidentally learned the woman was a vegetarian. I succeeded in getting her to eat eggs and meat, and at once the corneas became transparent. I could give the details of surely a hundred cases in which a sort of bulldog determination to hang to the mystery at last revealed some unexpected blunder or new law which brought everything to rights. The plan has the manifest advantage of aiding greatly in discovering new laws. It was in this way that knowledge of subnormal accommodation, head-tilting, the explanation of right-handedness and right-eyedness, the origin of spinal curvature, the eyestrain origin of migraine, etc., came about.

15. *The secondary results of eyestrain* may be too deep seated, chronic, or organic to make cure possible. These, in fact, constitute the saddest of our experiences and failures. I have at once and absolutely cured about ten cases of epilepsy by glasses, but the majority of cases of epilepsy may not be due to ametropia, and

certainly the majority of those which had an ocular origin are not to be cured by ocular treatment. So profound and long-standing an injury of the nervous system is not done away with by removing the primary cause. To get at the rat that ate the malt in the house that Jack built we must perhaps go through a long list of subsequent, and at last *per se* existing effects. Eye-strain may beget a condition of denutrition in which tuberculosis or any other constitutional disease secures its foothold. Once established, however, these diseases work their havoc by their own unaided laws. Eye-strain may directly cause gastric anacidity or hypochlorhydria, but, long existent, this may be incurable—even by the tenotomists! The thought leads to the influence of ignored eyestrain in youth or during the plastic and functional stages of disorder. We can do almost anything with the youngsters to reestablish normality and prevent subsequent miseries, but with the wrecks of thirty years which constantly appear in our office we can only groan, "It might have been." The ignoring prevents prevention. But it is precisely in prevention that our ideals and perfect work lies. No physician can resuscitate the dead, none cure all the effects of organic diseases in the living. Even too long-continued functional disease may become so confirmed as to resist all therapeutics, although no discoverable organic lesion is to be found. In their last analysis what indeed is asthma, hay-fever, headache, "latent

or concealed gout," angina, melancholia, faddism, incipient or even confirmed insanity, criminality, color-blindness, seasickness, and many other similar affections? The part played by eyestrain in the production of any disorder is less possible to check or extinguish with every added day of its continuance.

But when all has been confessed, discounted, and allowed for, the truth remains that in no department of medicine is practice so satisfying, in none is cure so much the rule, as in refraction work. Even in the inveterate and the most hopeless cases some measure of gratifying and gratitude-bringing relief is usually possible. I would by no means place my failures, all and sundry, all that can rightly be called such, so high as ten percent. I know of no more astonishing and beautiful thing than the way nature will respond to our intelligent helpings toward cure. The organismal wisdom will often wait, and wait, and still wait, even a lifetime, for the little device which enables her to pick up the tasks and functions deferred by decades of suffering. An eye that has never seen but with one-half acuity because of astigmatism will at once with the cylinder see a new and perfectly visualized world. A heterophoria almost reaching heterotropia will soon disappear. Migraine or sickheadache of a half lifetime may suddenly or slowly disappear with proper spectacles. Of course it is not always so, but it is usually so. And the same may be urged as to other

systemic effects of eyestrain. The younger the patient the more surely is normality to be reinstated. From 35 to 50 percent of school children have sufficient eyestrain to lower their health, put them behind in their classes, or otherwise abnormalize them mentally or physically. There is no duty more sacred than to prevent the certainly-coming tragedies in these children, by the means at our hand. It is in truth a question of national validity, and a concern of civilization itself. The financial value of the communal product can be enhanced by at least 25 percent through attention to this, and that is to look at the matter from its crudest and least utilitarian point of view.

THE EXAGGERATION AND HOBBY-
RIDING OF THE EYESTRAIN
THEORIST.

CHAPTER X.

THE "EXAGGERATION" AND HOBBY-RIDING OF THE EYESTRAIN THEORIST.*

ONE of the most common and ancient of the methods of ignoring and denying new medical truths, discoveries, and progress, is to call their advocates "cranks," "exaggerators," "enthusiasts," "hobby-riders," "theorists," "extremists," "grinders of their own axes," etc. These flattering epithets are so pleasing to the epithet-makers, and the consciences of these gentlemen are sometimes so suspicious that the epithets are incorrect, that the honorary titles usually appear in unsigned editorials, reviews, and in other allusive and elusive places and ways; thereby one is prevented from answering and bringing refutation home to one person's judgment. Lately, however, one confrere has boldly said these things to me in a personal letter. To him I sent the following reply. I publish it because my correspondent's attitude of mind is so representative, so precisely that of many who seek or assume to be "leaders" of professional opinion and practice. As that attitude of mind is peculiarly misleading, as it is

* From *Annals of Ophthalmology*, January, 1906.

wholly unprofessional (*i.e.*, not for the good of the profession), I think that the falsity of every one of its false statements should be exposed. As these statements are not founded upon reason, they will not convince their irrational makers, but one may possibly prevent the hardening of some of the minds of the young into illogic dogmatism and prejudice.

(Copy.)

My Dear Dr.:—

Epitomizing your unkind letter of January 15, 1906, I find that directly, or by implication, you charge me with the following blunders, mistakes, professional sins, and crimes:

1. That, contrary to my view, heterophoria produces disturbing symptoms which cannot possibly be relieved by simply correcting the refraction.

2. That "some of my statements are extremely loose when considered from a scientific viewpoint;" that I have "a disregard for the powers of observation of other medical men," have a tendency to confound theory with fact (truth), a bias toward a pet idea; that I am an "extremist," "faddist," "hobbyist."

3. That "they do not forget," and you plainly imply that I do forget, "that there are other things besides eyestrain that may produce headache; that indigestion, chorea, epilepsy, etc., are often due to other things than eyestrain."

4. That I have "too generously" charged an indefinite number of ophthalmologists with sordid motives.

5. That "every skilful, conscientious, careful ophthalmologist, as you well know, is affording relief to many patients who have suffered from headache of various forms, from certain forms of dyspepsia, choreiform movements, etc., etc."

6. These, you say, are anxious for the truth and fearless in its promulgation when they are satisfied of its genuineness. "They do not think it wise to assume positions that are not tenable," and lastly, that while "we must cry the truth from the hilltops, if necessary, we must be careful that untruth is not voiced."

I will take up these charges seriatim:

1. At the time of the meeting of the Pan-American Medical Congress in 1892, tenotomy not only for strabismus, but for heterophoria, was at the zenith of its vogue. Everybody seemed to be clamoring to be operated upon for the most evident symptoms of simple ametropic eyestrain, and almost every oculist was as eager to attempt the tenotomies, graduate, undergraduate, and postgraduate. Before the Ophthalmic Section of the Congress I hazarded my little reputation by protesting that this operative treatment of heterophoria was wrong, root and branch wrong; I followed my extempore statements by articles (*Medical News*, October 14, 1893, and November 18, 1893), and later by an article in the *Journal of the American Medical*

Association, of November 1, 1902, directed against the operative treatment of strabismus. It is at least an odd coincidence that from 1892 and 1893 the tenotomomania of American oculists, except in one or two instances, has steadily waned, until now comparatively few rarely tenotomize for heterophoria, and many have abandoned the practice entirely. The vast majority of oculists in civilized countries would laugh at your contention that such operations are necessary. They would charge you with indiscrimination, hobby-riding, or at least with extremism. How would you answer them?

I understand that you would not justify the action of one of your —— colleagues, who operated on a patient, (finally coming to me two or three years ago,) about twenty-eight times, and, as a result, the man had little or no power of any kind over coordinated ocular movements. All the 'phorias, like Hans Breitmán's barty, had disappeared *in die Ewigkeit*. Nor of another, in which the conjunctiva had been snipped seventeen times, the "operations" having been designated as "tenotomies." My question remains: What have you done, in the interest of discriminating, and in rebuking "extremism," toward lessening the evils of tenotomomania? For fourteen years I have, in a large private practice, found no case in which I have thought it advisable to tenotomize for heterophoria. Possibly, I am not so discriminating as you, possibly

you are not so discriminating as I; possibly, also, I am not so successful as you in relieving "the symptoms" you say cannot be relieved except by operation. I think I do relieve. I have nothing to regret in my course, however, in this respect, and at least your right to lecture me upon the matter may be questioned; "the end of all this pother is, you think one way, I another."

2. I might also answer your second objection with the two lines from Browning just quoted, but it is best to go into detail a little.

At the Buffalo meeting of the American Academy of Ophthalmology, etc., held September 14-16, 1905, you said that perhaps 50 or 75 percent of migraine was caused by eyestrain, but that 25 or 50 percent was *not* thus caused. In your letter you now say that "every skilful, conscientious, careful ophthalmologist, as I well know, is affording relief to many patients who have suffered from headache of various forms, from certain forms of 'dyspepsia,' choreiform movements, etc." Now you should well know that this incriminates thousands of oculists and by implication is most glaringly inexact and untrue. With hardly a single exception there is not an ophthalmologist in continental Europe who would not charge you with the same sins of "extremism," "faddism," and "hobby-riding," with the same "extremely loose statements from a scientific viewpoint," which you lay at my door. To this thousand ophthalmologists must be added another

thousand in England and the United States, who, by no means will consent to be called "unskilful," "unconscientious," and "careless." There could be no clear and indubitable implication than this that you have as decided a "disregard for the powers of observation of other medical men" as have I. I say so bluntly, and you by "insinuendo." I do not think that frank statements are more dishonorable and unprofessional than roundabout implication. I say they are less so. Dr. Pagenstecher and Company, you know, speak of us and of our entire contention (50 or 75 percent admitted by you) as "Amerikanische Humbug." What would your colleague, Dr. ———, the most famous ophthalmologist in ———, think of your admissions noted above? What would Dr. ——— of ——— think, or Dr. ——— of ——— and many others I might mention? How would you answer their charges of "extremism" and "loose scientific statements?" They scarcely believe a word of what you say is true as to dyspepsia, chorea, and headache. What have you done to convince them of the error of their ways? To the vast majority of oculists of the world you are an extremist almost as guilty as I, and their indiscrimination is but a shade more reprehensible than yours. Why does the pot have such pleasure in charging the kettle with blackness? Have you not the same "disregard for the powers of observation" of these medical men as you

aver I have? Do you not also confound theory with fact (truth)? Have you not a fault of "bias toward a pet idea"? Is your claim for yourself of a better scientific mind than has been given me a proof of anything more than the dogmatism of conservatism, and the unwillingness to change opinion in deference to the logic of progress and discovery? By what right do you put yourself above me, and pose as a model of scientific precision? To be safe, you should admit no part of what I claim, because the true "conservatives," such as Drs. Dana, Knapp, Fisher, Berry, Pagenstecher, Fuchs, and the rest (men who have put themselves publicly on record), are waiting with hungry eyes to rend you.

And I wish to protest against your indiscriminating cruelty, in callously stigmatizing another as an extremist, a faddist, or a hobby-rider. These are old names, applied from the beginning of medical civilization to those who sacrifice themselves for the coming truth. You must know how quickly they blast the fortunes and imperil the success, even the livelihood, of rising young men. To those who want no honors, who scorn to chicanery for offices and fame, who disregard, and who must often condemn both "leader" and "leadership," who are strong enough to get and to hold practice without hospital positions, or presidencies, or chairmanships, or professorships—to such, this, your way of dubbing one as an unscientific extremist,

is contemptible and may be answered with a sneer. To those not so strong, these epithets bring cowardice and stultification, and a pitiful, worthless success. A genuinely kind, or a genuinely scientific, mind would refuse to bolster preconceived opinion and established error by such an ignoble method.

3. You say that I contend that "headache, indigestion, chorea, epilepsy, etc.," are solely due to eyestrain. By this you seem to place me under the logical necessity of charging you with egregious stupidity or willful misrepresentation. It is horrible to accept either necessity, and I therefore beg you to withdraw the words, for I cannot be impaled on either horn of the dilemma. There is not a line in all my writing that says or implies that "indigestion, headache, chorea, epilepsy, etc.," are solely and always due to eyestrain. I must beg you to be discriminating, not "confound theory with fact (truth)," not to be "an extremist," not to make "extremely loose statements," and not to "assume positions that are not tenable"; do be "careful that untruth is not voiced." It is impossible for me to think you have read my writings and then be able to make such a statement. To say that all headaches, indigestions, choreas, and epilepsy are due to eyestrain would be to write one's self down a fool, with whom no controversy would be possible or advisable. To say that I have said or implied such folly is to show the worst inaccuracy, and sin against me, that you say

I commit "too generously" against other oculists. Do you go on the assumption that it is not necessary to be discriminating, accurate, and scientific toward *me*? Extremism and untruth are subjective.

4. Possibly I have sinned in ascribing "sordid", inethical, and selfish motives to "an indefinite number of ophthalmologists." I shall certainly keep on sinning, however, so long as the facts remain which demand it. Your extremism and unscientific inaccuracy have led you into a common but crude error. Every close student of medical sociology well knows that in the professional ranks is an abundance of scamps and quacks possessing the doctorate degree. If you have not noticed the fact, many of your confreres have, and your lack of perspicacity does not disprove it. Now you are in error if you think that leadership, so-called, or the getting of fame, honors, professorships, etc., make physicians any more ethical. I am inclined to think that these acquirements may be, and indeed frequently are, got by means that thousands of more scientific intellects and more sensitive consciences would, and do, wholly refuse to use. You may find it best for personal reasons to court, or to give, the favor of patents of nobility to these scamps in high and in low places. I find myself incapable of doing so. Those who know anything of history or psychology know that the self-elected guides, "leaders", and judges, most of the textbook makers and editors,

the professorial and consultant classes, have scarcely ever made medical discoveries, have, as a rule, not allowed them vogue, and have martyred those who brought the new truth to recognition and realization. You prefer to belong, at least one-half belong, to the class of Hodge and Meigs, as against O. W. Holmes, the class of the persecuting, life-wrecking "brethren" of Semmelweiss. Members of this class, such as Dr. ——— of ———, ——— of ———, ———, ———, ——— of ———, are not moved to their work of ignoring or of destructive criticism simply because of dogmatism and prejudice, but by other evident reasons. Dr. ———, in a review of my books in the official organ of the American Medical Association, misrepresented and misquoted them, and went so far as to say I contended that cancer is due to eyestrain. Another solemnly avers that I believe that all headaches, indigestion, choreas, and epilepsies are due solely to eyestrain. Is there any man that would not rather be charged with scoundrelism than with idiocy?

5. You say that every skilful, conscientious, careful ophthalmologist, "as I well know," is affording relief to patients who have suffered from headaches, dyspepsia, choreiform movements, etc.

In this sentence is a *petitio principii* unworthy of a scientific and accurate, at least a nonextremist mind. Of course every ophthalmologist who is skilful, conscientious, and careful is performing these cures. I

not only admit it, but reemphasize its truth with all my heart. But you imply, and I deny, that all oculists are skilful, conscientious, and careful. There are perhaps 5,000 hospitals and dispensaries in the United States with Ophthalmologic Departments, each of these with staffs of professors and clinical assistants. You know that these clinical assistants are young, inexperienced, and usually wanting in one or more of the qualities of skilfulness, conscientiousness, and carefulness. You know you would not trust your wife or child to their care. It is they who do the refraction. You also know that some or many of the oculists established in practice in our country are often as unskilled, conscienceless, and careless. You know that there are many M. D.'s attendant upon and in the employ of the "eyes-examined free" opticians. You are also aware of the fact that there are many other kinds of quacks and rascals in the profession, and posing as "specialists in diseases of the eye." You cannot be ignorant of the fact that patients passing through the hands of other refractionists before coming to you, show you prescriptions and lenses which are incorrect, ludicrously wrong, and which never could have been correct. You know that there are nearly a hundred conditions of accurate refraction which are too commonly ignored, even by famous oculists, usually more ignored by the famous than by the unknown. The peculiarity of my practice for some years has been the

consultation by patients who have passed through the hands of other refractionists. It is a daily experience to find them with glasses as incorrect as if the patients had picked the spectacles out of a bushel-basketful of an optician's odds and ends. Yesterday a patient with four diopters of astigmatism and high anisometropia came to me wearing, from a famous oculist in your city, simple spherical lenses, alike in the two eyes. His six prescriptions by others were as absurd. A general physician of Philadelphia writes me that his patient had found no relief from obvious eyestrain reflexes from eight oculists, and the ninth, whom he compelled him to consult, cured him instantly. I was not one of the nine, so do not smile!

Not only this, but also further: You cannot have failed to see that a large number of American oculists do not believe in your theory that relief of patients suffering from headaches, dyspepsia, and chorea, is possible by glasses. The famous Dr. ——— told me he had examined thousands of patients suffering from these similar diseases, and had found no error of refraction whatever. Do you believe such nonsense? There are many who share his belief. And besides this you are aware that in all Europe, except by two or three men, such a possibility of curing these diseases in this way is not held worthy of attention except by a sneer and shrug. If your theory of the etiology of some, of many, of these diseases is true, it should

be seriously, and in detail, set forth in the textbooks on diseases of the eye. Is it even mentioned by most of them? I fear you are not discriminating and scientifically accurate. You appear to be an extremist, and a hobby-rider.

6. These careful and conscientious and skilful men, you urge, are "anxious for the truth and fearless in its promulgation, when they are satisfied of its genuineness. But they do not think it wise to assume positions which are untenable." Can you say this while looking at yourself steadily in the mirror, and not laugh outright? Truth, you aver, "must be cried from the hill-tops if necessary, but we must be careful that untruth is not voiced." These statements are to me so loathsome that I can hardly answer them with becoming equanimity and courtesy. As you make yourself their mouth-piece, as you speak for so large a class holding the same views, I must briefly direct your attention to their iniquity. At the Buffalo meeting referred to, you spoke your sentiments about as follows:

"Perhaps 50 or 75 percent of migraine is due to eyestrain, BUT I WISH TO PROTEST WITH ALL MY POWER AGAINST THE **PERNICIOUS ERROR** THAT **ALL CASES ARE DUE TO THIS CAUSE!!** SUCH STATEMENTS ARE **PROOFS OF EXTREMISM AND HOBBY-RIDING!!!**"

This manner of expressing your theory is shared by

many "leaders," "ophthalmic surgeons," and especially by the editors of the official organs of medical societies, and of commercial (medical) journals. One must ask for details.

a. When did you, or when did those sharing your opinions, you middle-of-the-road men, when did you show yourselves "fearless in the promulgation" of the half-truth you admit? When did you "cry this truth from the hill-tops"? When will it become "necessary" for you to do so? For 20 or 30 years others have been proclaiming this truth, and so far as I can judge, during this time you were wholly ignoring and silent. Even now you are—in double caps—interested only in great care that the untruth shall not be voiced, and unconcerned about the truth you admit—in diamond type. Is it a cunning shrewdness, or a pitiful neglect, to wait until the growing acceptance of the truth compels a putting one's self on record? Politicians, in such circumstances, speak of "climbing into the bandwagon before it is too late." Records of the *Transactions* of 30 years' work in great or little Ophthalmic Societies are gleaned in vain for demonstrations of the "proclaiming from the hill-tops."

b. Is not the positive truth of more value scientifically and therapeutically than the negative limitation? Why is your interest so intense in the limitation and so low and anemic in the tremendously valuable positive truth?

c. The crux of the matter lies in the supreme difficulty of the art of accurate refraction. When have you careful men, admitting part of the truth, shown zeal and demand that the multitude of the sources of error in diagnosing eyestrain and prescribing lenses therefor, should be brought to a perfection rarely witnessed? Only through scientific and long courses of study in optics, physiologic and pathologic, can the student become "skilled, conscientious, and careful." Do the desirable and necessary optical schools exist? Why not?

d. When and where, and how often, have you met the sneers and ignorings, the denials and contempt of your colleagues, the great ophthalmologists of the world, who laugh at your contention that our specialty can relieve "headaches, dyspepsia, choreiform movements, etc."?

e. Fifteen years ago I began to advocate the truth that eyestrain is a causal factor in the production of many diseases of the digestive organs. Year after year I have continued to hammer out articles and give clinical proofs of this theory. When did you, or your fellow critics of me, begin to help toward the acceptance of the theory? You now say dyspepsia may be due to eyestrain; why did you let me fight alone for so many years? Why do you now say nothing as to this history of the discovery? Why do you not remonstrate with all the makers of textbooks on the diseases of the

stomach and intestines, not one of whom speaks of the matter? Why do you not thank me for the truth gained instead of lecture me on my extremism and hobby-riding? My theory of the origin of lateral curvature of the spine is a great discovery. When will you begin to investigate it, and when acknowledge that there is *some* truth in it?

f. Lastly, why the utter lack of interest in the millions of suffering patients whom you condemn to a continuance of their ill-health because of your tremendous emphasis of the 10, 25, 50, or 75 percent you say are *not* curable by glasses? Your commercial (medical) journals have unanimously howled at me, *Danger, Danger! Extremism! Nothing but harm can come from such exaggeration!* You reecho their inane and senseless cry. There are today, even in our own single country, millions of patients suffering from "neurasthenia," diseases of the digestive organs, and nervous and cerebral disorders of a hundred kinds. Some, often a large proportion, you admit, grudgingly admit, may be, and are due to eyestrain. Where is the "danger," the "unwisdom of assuming untenable positions," the flagrancy of "carefulness that this untruth be not voiced," from the simple trial of a pair of lenses? These patients are proverbially incurable; all the neurologists and gastrologists cannot help these hopeless sufferers. Will the gastrologists and neurologists and the professors and the consultants and the

far-away country physicians, try to relieve the small or the large percentage of their patients by scientific spectacles, unless you join in promulgating the truth from the hill-tops and forget your quibbling and emphasis as to the small percentage not due to eyestrain? This is a new gospel. Come over into Macedonia and help us!

If only you could see that your position is simply an illustration for the millionth time of obedience to a fatal psychologic law of your mind, and that the objective facts do not motive or condition your logic! If you could see that you love your so-called science which is confessedly unscience, more than you do the relief of myriads of unhelped patients! You and I and our profession should not, do not, exist for "science," or for abstract truth, but for concrete therapeutics, individual cure, and the future prevention of suffering. The world does not care, does not need to care, whether or not you "save your face," justify your past opinions, or your present prejudices. We exist for better things, for beneficence, at least for benevolence. One day's "science" is the error of a later day, but the will to help, the wish to relieve pain, the love of patients, overtops all narrow demands for a fluctuating and contradictory exactness of creed or scientific dogma.

By holding to my *belief*—the result of experience—in the method of cure which I advocate I have cured thousands who would have gone out of my office unre-

lieved. I prefer my facts to your theories. The limitations you emphasize so uselessly and dogmatically really limit your ability to cure. I should like no better work in the world, if I had not already all the patients I want, than to take the refused and unhelped patients that Dr. ——— & Company turn daily away from their doors—and turn away because they prefer operations, professorships, to stand well with their like-minded fellows, to be held careful, scientific, “conservative.” The conservative is one who usually succeeds in conserving error and—himself. I prefer to cure one case unhelped by “science,” and unrelieved by conservatism, to all the reputation and self-satisfaction gained by the self-flattery of being held scientific and conservative. If your mind is attentive to the science and the conservatism you will not cure as you would if you are single-eyed and single-hearted to give every sufferer the benefit of the doubt. No one has ever explained how it is “dangerous” to give the million sufferers this “benefit of the doubt.”

It is only the logical and the inevitable result that those who cry most loudly or contemptuously against the extremism of the eyestrain theorist, should be precisely those who do the poorest and most inaccurate refraction work. If they did their work correctly they would long ago have seen their patients cured, and would have joined the ranks of those who know. Only last month a patient came to me from a distant

city with a history of 25 years of intense and constant misery with frontal headache, intestinal fermentation, constipation, etc. His local oculist, the last one, told him repeatedly and emphatically that his frontal headache was *not* due to his eyes, that he must get that idea off his mind. The patient returned to the oculist, saying that his headache must be due to his eyes, and quoted some patient of mine. Again there was the assurance that it was not the fault of the eyes—adding that “Doctor G. allows his hobby to get away with him.” Now the point of the story is that the man was wearing incorrect glasses, and that correct ones gave him immediate relief of all his symptoms. I shall soon publish reports of many such cases, the moral being that those who complain most of the hobby-riding of “the eyestrain crank,” are precisely those whose glasses are most incorrect, who, therefore, do not cure so many of their cases as they should; thus they demonstrate that their skepticism is the consequence of their inexpertness. As of old, deeds are followed by faith. They who do the will of ophthalmology shall learn of the doctrine. In a practical way there is no such thing as “science” and “truth.” The least knowledge of the history of science, and especially of such an inexact, and fluctuating science as medicine, quickly demonstrates that there is no resting with acquired truth. The attainment of one generation, of one decade, must be supplanted by that of

another. Progress may build on the certainty of the past, but at once the new progress makes the old certainty an almost colorless and useless thing. Even the most solidly founded, most universally admitted truth of modern science, the atomic theory, has been almost undone within the last year or two. In therapeutics and etiology, surely, we are learning that an acceptance of the average opinion, reliance upon the consensus of most generally accepted belief, is folly, and that even the trust in so-called ethics and professionalism, may go too far. If I can cure my patient only by the decried and unscientific and "inethical" remedy, I shall surely cure him in that bad way, because the standards of democratic averages, of common consent, of ethics, and the rest, vary and change, but kindness and benevolence never change. Medicines may fail, but Medicine will not fail. Say what we will, medical practice is far more empirical than scientific, and the hobby-riders and exaggerators are the discoverers of empiricism. The only doubt is as to the certainty of the "facts" and the "cures" of the "unscientific empiricist," but that doubt cannot be lessened or resolved by any cry of "hobby-riding," "extremism," etc., or by any sneer of the self-satisfied.

POSTSCRIPT.

After the proofs of the foregoing had been returned to the printer, the following letter was received from

a representative general practitioner. It is such a capital finger-post, in two directions, that I cannot withhold it:

"My Dear Dr. Gould:

"Your article on *A Case of Neurasthenia, etc.*, moves me to write to you. I have been a sufferer from eyestrain from boyhood. (I am now 48 years of age.) I know *by experience* of the suffering that may be caused by errors of refraction, and of the relief afforded by their correction, first by you in 1888, and afterwards by others. Without this relief your words might now be to me as they evidently are to very many others—"hot air."

I wish to show you the effect upon the general physician of pooh-pooh "exaggeration," etc., especially when coming from an ophthalmologist. My oculist in this (western) city has been very kind and good to me and has personally given me relief by glasses. On a recent visit I happened to speak of you and your writings. Instantly there was on his part a disposition to pooh-pooh. It was not extreme, but it was enough to shake my confidence in the man, as one fitted to practise his specialty—a confidence never before shaken.

These questions have arisen within me: How many are there of this kind? What will they do? Continue to pooh-pooh, and charge you with being a hobby-rider? Will they go on this way until the general practitioner, losing confidence in them, forsakes them as consultants? or will they "see the error of their ways," and go and learn, etc. Keep up the fight! Of course it is discouraging, etc."

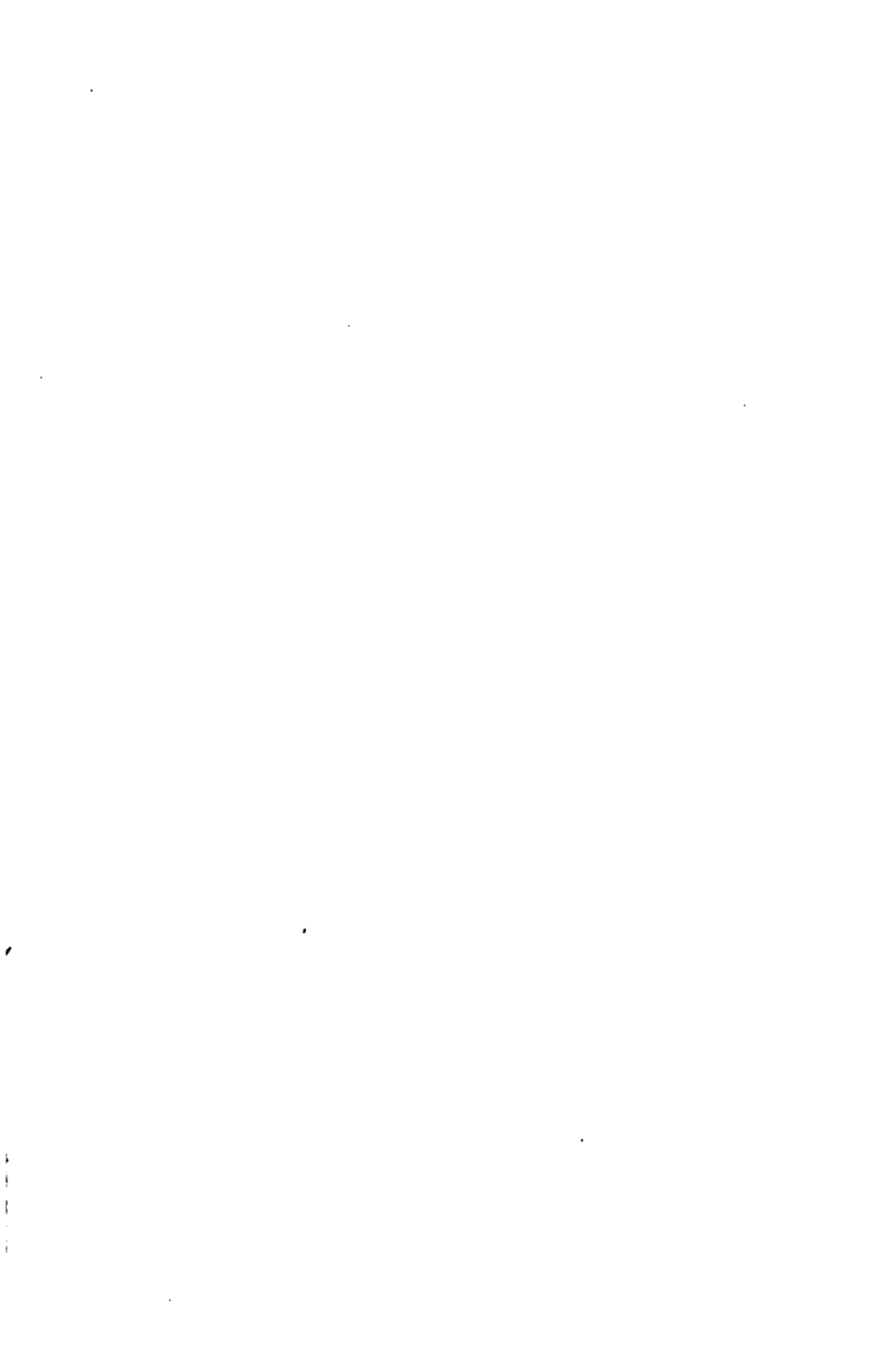
My objects in quoting these portions of this letter are to suggest, first, the humor of the posture of the ostrich hiding his head, according to the fable, in the

sand. Second, that the hour has arrived for throwing off the inherited and clumsily assumed attitude of what my correspondent calls "pooh-pooh" and exaggeration-crying. I have had innumerable letters of similar import from general physicians, and all show that they are concluding to "do their own thinking hereafter," and that that thinking is not by any means according to the habits and desires of so-called "conservative" ophthalmologists. I am of course aware that both you and I are heaven-high above any "appeal to the galleries!" We would not think of sacrificing a bit of our awful love of truth, of exactness in scientific matters, in order to secure the good will of the plebeian general practitioner who may have patients to send by and by. Sacred Science depends upon us and upon our strict conformity to truth—what we have so far found to be truth—therefore—.

And behind both of us, the specialist and the general physician, stands another most important party to the controversy—the intelligent public. He is also learning to "do his own thinking." To a rapidly increasing degree he is finding out that the criers of "exaggeration" have not been good guides. Of course it is maddening, and all that, but you must remember that it was the intelligent patient, 30 or 35 years ago, who taught the oculist, who taught the neurologist (who later got sickheadache over his blunder) all in a most amusing House-that-Jack-built manner. This great truth,

far greater in its reach than I have ever suspected, was a discovery of the poor afflicted layman patient. A wise unknown and unhonored oculist was quick enough to recognize, in the poor twilight, a little of the direction and told another. Upon the whole ophthalmologic and neurologic, and surgical worlds, the truth has been forced against their wills. To strike an average, to quibble about percents, to half-accept, half-reject, and all the rest, will no longer avail. The general practitioner has awakened and the public is asking angry questions.

THE EYESTRAIN ORIGIN OF
EPILEPSY.



CHAPTER XI.

THE EYESTRAIN ORIGIN OF EPILEPSY.*

THREE years ago, at Craig Colony, New York, I undertook a little test designed only to show that the case of the epileptic is not always hopeless, and that eyestrain might rarely account for the presence of this opprobrium of medicine. The results, as taken from the confused and untrustworthy statistics of the official report, were as follows: The tests concerned 58 patients, all chronically diseased, many hopelessly so. Of these, according to the report, the seizures were lessened in 19 cases by 382, or 44 percent, in three months. One patient, again according to the report, was cured, while the average of cures, during the whole period of the existence of the colony, and by all other methods of treatment combined was one in eighty. The figures, I must confess, are not worth much, but taken at their face value, one-third more cures, proportionally, by ocular treatment, than by all other methods, is, indeed, better than I had expected. This proportion, moreover, is doubled by a fact I have subsequently learned, the cure of a second patient

* From *Annals of Ophthalmology*, October, 1905.

who left the institution, and who has no seizures so long as he wears his glasses, so long as they are kept straight and adjusted, and so long as they are changed when advisable.

I have epitomized this story in order to emphasize several suggestions:

1. The pleasure which the superintendent of the colony had, in his report, in pronouncing these results "disappointing," and in minimizing them, so that, since then, a hundred delighted imitators and echoers should be able to teach that eyestrain had no possible causal relation to epilepsy. In truth one of the most inexplicable of psychologic riddles is the furious glee with which some specialists rush upon the stray medical dog who suggests that a disease, at least occasionally, may be due to an unsuspected cause. Just in proportion to the mystery of the etiology, the more utterly incurable the disease, then the greater is the haste and the enjoyment, in pouncing upon the intruding cur.

2. The same eager delight is shown by some neurologists and editors of defunct medical journals who, ever since, have been growling and snapping in their postmortem dreams. The sweet word, *Disappointing*, was sniffled only two weeks ago, *à propos de rien*, by a wellknown medical journal, and several years after its obsequies.

3. My mistake, of course, consisted in not having

excluded from the test the old hopeless patients, those on the edge of the grave, and hence incapable of convulsions after death. Epilepsy, once deeply established, is doubtless incurable. All we may hope for is the best cure, *i.e.*, prevention. All public tests should be made upon the younger and less severely afflicted patients.

4. The misfortune of the test was that there was no resident oculist or optician to see that the most requisite conditions could have been carried out in the after-history. All oculists well know *e.g.*, that an astigmatic lens awry, or temporarily not worn, increases the liability to attacks.

But what is epilepsy? I do not mean what, abstractly, is its etiology and pathology; I mean as regards the individual patient. Just what symptoms present in a single patient make his case, admittedly, one of "true," "genuine," or "typical" epilepsy. As near as I can make out from those who pretend to know the nothing that is known as regards epilepsy, it all depends upon the aural cry, *O, Mama*, and the biting of the tongue. No patient has the real disease if he does not bite his tongue and implore his mother. All other seizures are only "epileptoid," examples of "tonic and clonic contractures," *petit mal* (which is not much of a *mal* after all), simulated, pseudo, and false—the mimicries of the disease, perhaps even the whimsies of an impertinent oculist's ignorance. These

are unworthy a dignified neurologist's attention, except to name them, apply a ticket, "look and pass on."

All of which scarcely satisfies a serious or observant mind. To him it would appear that there are almost as many different types of epilepsy as there are patients. Did any genuine clinician ever see two cases just alike in every respect? Does a patient have "epilepsy" who never has an attack except in his sleep, none having seen him during these supposed attacks? Does a person have epilepsy who has only one attack during his life? Or one in ten years? Does a person have the disease who every week or two sinks down in the street, somnolent, and who has to be carried home, has then violent headache, and with a ten-hour sleep is again normal? Does a person have epilepsy who slips softly to the floor, instead of falling suddenly? Does he who froths at the mouth, but does not bite his tongue? Who bites a little, and occasionally only? Is convulsion necessary? Is any one symptom necessary? What is necessary?

Upon closer study it is evident that, from the slightest wavering of the attention for a second, there is no "missing link" through a thousand grades and varieties of mental and physical aberration and incoordination until the mama-and-tongue type is reached. Some people are very absent-minded; who can draw the line between absent-mindedness, lapses of the attention in normality, and admitted *petit mal*? It

is utterly impossible to draw such a boundary between *petit mal* and *grand mal*. Nomenclature absolutely fails, and a sharp clinical observation denies that there is any need or gain in attempting the task. Is it not clear that at bottom all types are variants, degrees and accidents of one fundamental fault or abnormalism? The names given by patients to their symptoms support this view. The mama-froth-and-tongue type thus often seems only the last and severest stage of years and years of precedent "falling fits," "fainting spells," "swoonings," "spells," "losses of consciousness," "blind headaches," "stoppings," "odd motions," "lapses," "tired times," "exhaustions," "strange subjective sensations," "visions," "odd feelings," "numbness," "pricklings," "knots in the stomach," "spasms," "cramps," and all the rest. Are there not ten patients with these "epileptoid" or pseudoattacks, to one of the mama-froth-and-bite type? The keen desire to throw the ten out of the count and to consider as genuine epilepsy only those of the hopeless and doomed ones in the last stages of the disease, is all one with the desire to find "disappointing" and fallacious any suggestions of etiology and cure.

And these gladly "disappointed" physicians are the anatomic pathologists who have never heard that function precedes structure and begets all organs, and that, in the last analysis, pathology deals only with the terata

of physiology. Thought, mind, the soul, sensation—these, they do state, cannot be dissected or weighed, and therefore they are merely the consequences of morbid anatomy which, alas, our poor microscopes cannot discern. It is gall and wormwood that there is no anatomic pathology to be found in epilepsy, migraine, etc. In the neurologist's laboratory there are no slides labeled "section of a headache;" "specimen of seasickness;" "slide showing the megrims;" "the neurons in *grand mal*;" "the cortex in *petit mal*;" "stain of the ganglion in loss of attention;" "the hair-bulbs in insomnia;" "the neuron filaments in pseudo-epilepsy as shown before death of the patient," etc., etc. There is great happiness to some in the little scientific farces, *mind denying the existence of mind*, and, *life asserting that life does not exist*. What an amusing thing is much latter-day neurology and psychiatry!

It would seem wiser to fix the attention upon the early and slight and simple types of the disease. Evolution mightily teaches that we can know and understand a product only when we know its history, and especially its beginning and incipient phases. Naming a thing does not much aid the scientific student of facts. One does violence to the truth in classifying functional diseases by ignoring the intermediates and halfway stages. It is better to look at the facts themselves; and not types or classes, but individuals must be studied,

if as physicians we are anxious to cure and prevent. To a right-minded man all study of diseases must end in the will to cure and the wish to prevent. As to epilepsy we are all pretty well convinced that neither after nor just before the epileptic's body reaches the postmortem table may we expect anything from therapeutics.

"Back to the child!" is therefore the cry of medicine as much as of pedagogy. What is it in the young, and in the incipient stages of epilepsy whenever occurring, that results in lapses of attention, losses of muscular coordination, falling fits, nerve-storms, convulsions and a hundred variations classed as *petit mal*, epileptoid, epileptic or *grand mal* seizures? Of course no one can as yet fully answer that question, because no one knows. Those happy in *their* heredity, or imagining themselves so, say *Heredity!* The degenerates say, "*Degeneracy!*" But Nordau illustrated the utter absurdity of the theory in one way, and sound observation has settled it nicely in another. Those who ticket the diseases of the sufferers with pompous names will never know. May the Lord of Science be merciful and—unforgiving to them forever!

When we come to study the individual cases of those beginning the epileptic career, of those frightened at the approach of some of its protean prophecies and forerunners, we find sources of mischief, and evidences of malfunction of many mysterious kinds. These

seem to interfere with habitual normality, and to come, as it were, from without. There is an inexplicable storing up of irritations; together with an inability to do so for long; there are interruptions of the normal, preventions, losses of coordination; there seems a sudden giving away, a crisis, and lastly, a sudden reinstatement of health. Why and where the irritation? Why the derouted reflexes? How and when the storing and the strain? Why the inability to store longer? Why and where the breaking of the dike? How the quick return to the normal?

A continuous source of irritation and ingravescient tension may come from a number of causes in a given patient, but of all thinkable or discoverable ones none is more clear to all refractionists than eyestrain. If one will pressingly inquire, it is astonishing to learn how many of our patients with patently severe eyestrain have rhythms of inexplicable ill-health, nervous breakdowns, falling and fainting fits, and many "epileptoid" seizures. How close, indeed, is the analogy of the vomiting crisis and clearing-up of health in sickheadache, to the "typical" epileptic seizure. Many such facts more than suggest to the keen-minded a similar cause as a basis of both pathologic conditions. The entire phenomena of "migraine," indeed, in all their thousand varieties, are much alike in the facts of periodicity of strain, climax, and break, alike also in the needs of ocular rest and for physical

activity. It is most suggestive that the best cure for epilepsy is admittedly the draining off of surplus stored energy into healthful muscular activities. In every case of "migraine" there is the same imperative necessity. The analogy is most striking, and should long ago have excited clinicians to suspect a like cause in both diseases. It is not a question of how many or how entirely. It is a question solely of deciding in the single case of the patient there before one, if eyestrain exists and if it may be the source of mental and nervous losses of coordination and control. Is it not most noteworthy that 98 percent of epileptics have astigmatism, and that one-half of these have unsymmetric astigmatism?

That eyestrain may cause epilepsy is the belief of many oculists, and I append a few of the proofs which in my reading have incidentally come to my attention. A thorough gleaning would doubtless show as many more.

The first is that associated with the name of Dr. Stevens. His book was published in 1887, but its preparation dates from the year 1883. In his earliest reported case the eyes were examined in 1876. A noteworthy feature of this case was that heavy doses of atropin had been administered systemically by his general physician and this drug had the effect of "lengthening the intervals between the attacks slightly." "Since discontinuing the medicine they

have returned with more than usual frequency."* This patient was cured by "glasses correcting the hypermetropia of 1-24." There was at this time no tenotomizing or even "training the unyielding muscles." The sad state of the art of refraction then, is shown by the statement that of 100 epileptics examined, 18 "had emmetropia, or refraction errors of less than 1 D." Within that amazingly neglected 1 D., we now know lies the vastly greater source of reflex disturbance. There follow reports of two cases of epilepsy due to the involvement of the ciliary nerves in cicatrices, and reported as immediately cured by enucleation. The third case was cured by glasses, but with the ominous addition, "the unyielding muscles were trained to greater flexibility." The fourth was a case of hysteroepilepsy in which pilocarpin took the place of all other curative methods. The fifth case was also one of cure by correction of the ametropia alone. After this (can any one explain why, can one imagine why?), begins the dreary record of operations emphasized and glasses ignored. One may suppose the "emmetropia or refractive errors of less than 1 D." were also ignored. The subsequent proceedings inter-

*In 1902, I proposed to the Superintendent of Craig Colony, the experiment of atropinizing the eyes of 100 young epileptics for 30 days. The test was not allowed. I believe it would be far more conclusive than the poorly conditioned test permitted. I hope some liberal minded physician or superintendent will some time conduct such a simple, harmless, and easily carried out experiment.

est us no more, although there is one case in 1883 reported as cured by glasses without tenotomy. The effect, heterophoria, taken as the cause of eyestrain, and the deplorable ignoring of slight errors of refraction are, I judge, the mistakes which finally ended in the famous report of the special New York commission upon the subject. One may summarize the results of this commission as being, perhaps, as worthless as the reports criticised.

In the *New York Medical Journal* of April 16, 1887, Dr. Ranney endorses the Stevens operation, reporting its use by himself in eight case of epilepsy, followed by three cures, with five patients still under treatment.

Dr. Toms (*Medical News*, Nov. 3, 1900), reports a case of daily *petit mal* in a boy of 13, completely cured by glasses.

Dr. Wendell Reber (*Pennsylvania State Medical Journal*, 1902), reports a case of epilepsy cured by glasses. The patient had been having typical *grand mal* attacks for 15 years, latterly, on the average of 36 in three months. The patient fell to the ground and was unconscious for an hour or more. She had an enormous hyperopic astigmatism with hyperphoria.

Dr. Reber's second case was that of a woman having on the average 12 to 14 nocturnal attacks a week. Two other cases are described similar to these. In the discussion upon Dr. Reber's paper, Dr. Richard H. Gibbon stated his belief that "in many cases of epi-

lepsy" refractive errors and ocular muscle-imbalance "are responsible for the condition." He personally knew of five unreported cases cured by oculists—"not relieved, not benefited, but cured."

Dr. Geo. M. Gould (*American Medicine*, July 15, 1902), reports the following six cases:

Case No. 5349.—The patient was a man, aged 36, who came to me in September, 1898. He had been refracted without a mydriatic by others during the past 16 years, and of course had never had his ametropic error properly corrected. For 14 years he had suffered from insomnia, which had of late grown worse. There was also headache and pain in the eyes. During this time he had been afflicted with frequent attacks of unconsciousness. Just how often these occurred was difficult to make out, as he never fell or had convulsions; he only knew they were "frequent." I found his ametropia was:

R.+S. 2.25+c. 0.62 ax. 90=20/40

L.+S. 2.25+c. 0.50 ax. 90=20/40

with slight exophoria.

Since wearing the spectacles described, coupled with strengthening of the adduction power, he has had but two or three slight and short attacks of unconsciousness that he knows of; he at once began to sleep better, his headache and exophoria disappeared, and he is now greatly improved in health.

Case 5352.—The patient was a man of 25, who came to me in September, 1898, and who on account of his symptoms had been obliged to resign his position in a bank. He had also been refracted without a mydriatic, and his glasses were the reverse of correct. There was a family history of insanity and epilepsy. He complained of occipital headache, pain in the temples and neck, and sickheadache. During the past year he had been much worried by what were plainly attacks of the *petit mal* type; but the symptoms most hard to bear were what he called "thickening of the tongue," with loss of memory, and blurring of the vision. After prescribing glasses for his low compound hyperopic astigmatism against the rule, all of these symptoms began at once to abate. He had but one slight attack of "thickening of the tongue" during the three weeks following, and in two months all his symptoms had disappeared, he was gaining in flesh, and he was happy. In two years he began to be frightened at obscure symptoms which he feared might finally become the same as those from which he formerly suffered. I found his ametropia had changed, and since ordering new lenses I have not heard from him. He promised to return in two years.

Case 6173.—The patient, a woman of 45, came to me in October, 1905, in a bad state of health, suffering with all the symptoms of eyestrain. There had also been chorea. Seven years ago she had eclampsia,

and since then, every two or three days, except when under the influence of bromid, she had attacks of unconsciousness, in which she frequently fell to the floor. Bromid medication served only to postpone these attacks for a week. She had 4° of exophoria and 4° of hyperphoria with an irritating degree of compound hyperopic astigmatism. I corrected her ametropia, her presbyopia, and her hyperphoria with one pair of bifocal lenses, and from that time to May 1, 1902, she had had but one slight epileptic attack that her husband knows of, and she is greatly improved in general health.

Case 5097.—A man of 22 came to me in February, 1898, with opticians' glasses not correcting his astigmatism of 1.37 D. ax. 90 in each eye. During the last six years he had had six or seven epileptic convulsions, the aura being a trembling of the left arm. In the last two seizures he had bitten his under lip badly. After he began wearing the cylinders I ordered, he at once gained flesh, was more healthy; he has not had an epileptic fit since.

Case 2633.—This is particularly of interest to me because I was so convinced that the man's epilepsy could not be due to his small ametropic error that I at first refused to prescribe glasses. He was sent to me in March, 1893, by a physician in New York State, who was certain that his symptoms pointed to severe eyestrain. He was 43 years of age, just the age, be it

noted, when presbyopia was beginning to make itself irritatingly manifest. For six months he had been "running down in health." Whenever he attempted to read his eyes troubled him (he called it "weakness of the eyes"), followed by occipital pain, and if he persisted there were objective vertigo and great sleepiness. The chief complaint was of attacks of dizziness occurring often in the street, associated with nausea. He would sink to the ground, and then would have to be carried to a carriage and driven home, where he remained in bed in a semiunconscious state ("as if drunk"), usually for the rest of the day. These attacks had occurred two or three times a week. Under a mydriatic I found his only ocular abnormality was one-half a diopter of hyperopia in the right eye and one diopter in the left eye. I told him I did not believe his epilepsy was due to eyestrain. I had him examined by a competent aurist and rhinologist with a negative result. As it was a matter of awful seriousness with the poor man, I sent him to the most distinguished diagnostician in Philadelphia, who, after thorough study, thought all the symptoms indicated a tumor of the cerebellum. Before sending the thoroughly disheartened man home I finally said to him I would prescribe the glasses indicated for his slight hyperopia, anisometropia, and presbyopia. I told him that he could lay aside the distance glasses in two months if his epileptic seizures continued as before. He weighed

127 pounds at the time. I did not hear from him or see him for about two years, and supposed that he had become a confirmed epileptic or had died. He now came back for a change of glasses, as he had had some disquieting signs of a possible return of his old trouble. From the day he left me he gained one pound a day until he reached his normal weight, 172 pounds. He has never had a seizure or a decided epileptic symptom since. His static refraction remains the same; I have changed his reading glasses several times. He was well and healthy a year ago.

Case 5738.—This patient, a man of 37, came to me October 14, 1899, with a history of typical *grand mal* attacks, biting the tongue, etc., for 25 years. He had also excruciating headaches, and much indigestion. As near as he could estimate, the attacks had numbered about 12 a year. I found his error of refraction was:

$$R.+S. 0.75+c. 0.62 \text{ ax. } 75^{\circ}=20/20$$

$$L.+S. 0.50+c. 0.62 \text{ ax. } 75^{\circ}=20/20$$

This, especially with perfect acuteness of vision in both eyes, constitutes a defect infinitely more irritating to the nervous system than regular astigmatism of far higher degree. I prescribed correcting lenses. I saw this man last on April 28, 1902. In the two and one-half years that have elapsed he has never had a fit nor a headache; there is now no complaint of indigestion.

and he has good health. One year and a half after I first prescribed he read fine print long and late during one evening, and this use of the eyes brought on a kind of a mild epileptoid attack that so frightened him that he came to me the next day to see if the glasses were still correct. I found a considerable change in the refraction had taken place, and ordered new lenses, now worn with entire satisfaction.*

Dr. Zimmerman (*New York Medical Journal*, Nov. 21, 1903), reports one case of convulsive attacks, "thought by other physicians and himself to be true epilepsy," completely cured by glasses for two years.

A. L. Ranney (*New York Medical Journal*, Dec. 3, 1904), declares that eyestrain is responsible for many cases of epilepsy and refers to a previous publication of the notes of 26 cases. Four patients abandoned treatment from the beginning, but of the 22 remaining patients, 10, or 45 percent, may be considered today (nearly eight years since the aforesaid publication) as well (seven being completely cured and three being practically cured); amelioration of the attacks has been afforded by eye treatment in nine cases, or nearly 41 percent; and no improvement has been observed in these cases, or about 14 percent. He gives the histories of six additional cases. His general conclusions are that a very large proportion of epileptics suffer

*Since this report was written I have had several cases, equally striking, of the cure of epilepsy by glasses.

from some reflex irritation, most commonly from eye trouble. The refraction of all patients should be determined under mydriasis. Glasses should be worn for a while before any attempt is made to adjust the eye muscles. The most serious refractive errors and muscular defects in the orbits do not necessarily create eye symptoms; even when reflex symptoms produced by existing eye defects are extremely severe. The percentage of cures of chronic epilepsy under skilful eye treatment will naturally be modified greatly by the abnormal eye conditions found, the physical condition of the patient, the amount of drugs that have been given to the patient, and the complications that may coexist with eyestrain. No one is ever justified in promising a cure of epilepsy by any plan of treatment, but examination of the eyes should be a preliminary to any other mode of treatment.

Dr. Geo. H. Thomas (*Northwestern Lancet*, June 1, 1903), states that eyestrain "in one person produces migraine, in another epilepsy," etc.

The following letter from Dr. J. T. Duncan, of Toronto, is dated May 11, 1903:

Miss Blank is an epileptic (*grand mal*) and has suffered from convulsions for years, in spite of the best of treatment. On Sept. 1, 1902, she was referred to me to test her vision.

R. E. had vision of 6-6.

L. E. 6-12.

After the use of a mydriatic and retinoscopy, the final correction gave 6-6 in each eye, or together 6-5. The order was:

R. E. Sph.—0.25 c Cyl.—0.25 ax. 105

L. E. Sph.—0.25 c. Cyl.—0.37 ax. 75

Treatment has been continued as before, but she has had no convulsions since wearing the glasses.

Mr. N. Bishop Farman (*Medical Press*, Nov. 18, 1903), describes the case of a patient afflicted with fits, "tallying well with the picture of epilepsy, except that consciousness was not lost." After glasses had been ordered there were no more attacks.

Dr. Theobald (*Baltimore Medical Society*, Jan. 11, 1905), said he had found one case of epilepsy due to eyestrain, adding, "It is not improbable that if cases of epilepsy were so often referred to the oculist as are cases of intractable headaches, a closer relationship between eyestrain and epilepsy might be found to exist."

Dr. Francis A. Gallagher, of El Paso, Texas, in a personal letter to me, describes a case of "epileptic fits" cured by glasses.

Dr. Myles Standish (*Boston Medical and Surgical Journal*, Feb. 23, 1905), says he has seen no absolute cure by glasses in adults and long-standing cases, "although," he adds, "it is undoubtedly true that their removal increases the number and virulence of

the attacks, and such patients are always unwilling to give them up. In children and in youth, however, it is certain that epileptiform convulsions, in no wise distinguishable from true epilepsy, have been absolutely cured by correcting the error of refraction or the muscular imbalance."

Mr. C. Ernest Pronger, of Harrogate, England (see *Biographic Clinics*, vol. III), says that in epilepsy some error of refraction is very commonly present, and that the correction of it tends unmistakably to mitigate both the intensity and the frequency of the attacks.

It is scarcely courteous to say that these gentlemen are not to be trusted, and that their testimonies are without value. It is surely unscientific to put aside such evidence. It is wholly contrary to professional spirit to wave aside any explanations that may throw light on a disease about which we confess we know nothing, and are powerless to cure. It is brutally inhuman and inhumane to slam the door in the face of a million sufferers from a horrible and tragedy-bringing affection, when possibly some of them might be cured and many others prevented by so simple an experiment as that of wearing scientific spectacles.

POSTSCRIPT.

Since this article was in type Dr. William P. Spratling has published a paper entitled *Epilepsy and Eye-*

strain, in which he says that he greatly regrets that the patient he formerly reported as cured by spectacles did not fulfil the promise of recovery. For 15 months after the glasses were ordered the patient had no attacks; but he then broke his glasses, and while not wearing any glasses he had four attacks in January. Then he again "put on glasses," and had 10 attacks in two months. For nine months there were now no attacks, but several a month occurred after this. This ludicrous clinical report is followed by the following still more ludicrous statement:

"The sole point to which I wish to call attention is that the glasses in this case seemed to 'repress' the epileptic attacks in a manner not unsimilar to the 'repression' that is often secured by the use of bromids, and that like the bromids while they may mitigate the disease, they are without power to cure.

A more capital example could not be desired of the folly of committing such experiments to the care and reporting of those incapable by nature and training of realizing the simplest principles and conditions involved. Fortunately for those who do not delight in consigning the epileptic to despair and therapeutic nihilism, the very report (as happened before) is most encouraging. Nothing could be more convincing of the power of the correction of ametropia than the facts set forth—the freedom from attacks of the patient, for 15 months, their resumption with the broken and the abandoned

glasses, and all the rest of the history. The important points of the entire affair, are, of course, wholly omitted—what kind of glasses were ordered after two years, who ordered them, who overlooked the fitting, etc.? These reports by Dr. Spratling come out every two or three years with all the clinical discrimination and clarity of a stone-crushing machine into which are cast boulders or epileptics, with the foregone conclusions of “disappointing” and “regrets.” One is reminded that there is a “Reformatory” in the United States where a half bushel basket of minus spherical spectacles is placed by the side of another basket of plus spherical lenses; the poor prisoners with headache or bad vision are then told to choose their own glasses from either basket and go off and wear them! And then this “repressive” effect of glasses like unto that of the bromids—what a mixture of science, sympathy, and therapeutic zeal!

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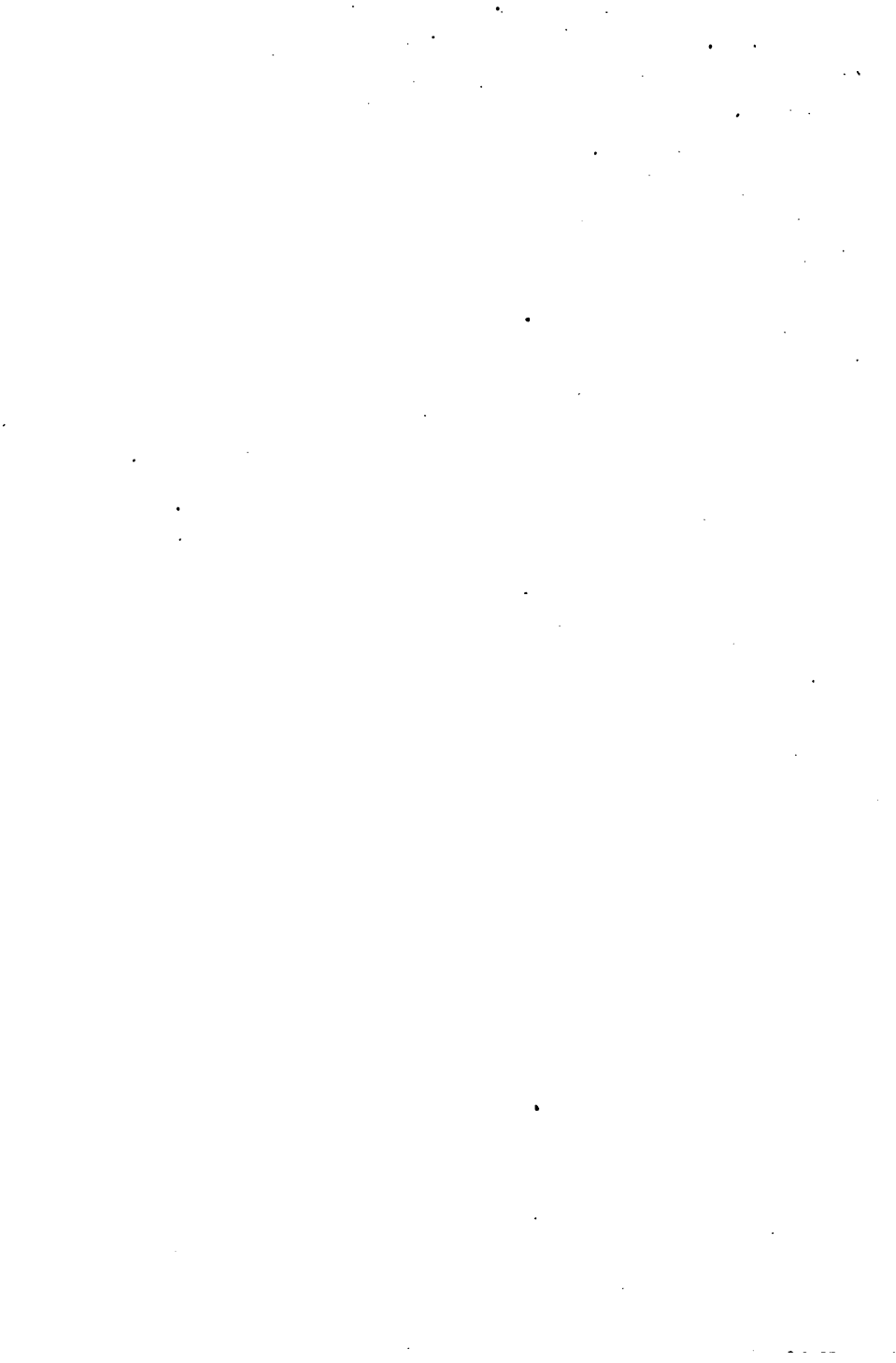












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